

FINANCE

COMMERCE

ENGINEERING

YALE UNIVERSITY
NOV. 12 1936

THE FAR EASTERN REVIEW



上海黃浦灘念四號

遠東時報

THE TERROR IN CHINA
ANGLO-RUSSIAN AND ANGLO-JAPANESE
RELATIONS

"WRONG HORSE HARRY" RIDES AGAIN
SHANGHAILANDER IN JAPAN

Vol. XXXII

SEPTEMBER, 1936

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The Terror in China

By C. J. LAVAL

A VOLLEY of pistol shots at night in Shanghai; another dastardly assassination! Thus the situation in China was brought in the closing days of September into a new tense crisis. Responsible leaders of the Nanking Government and every thinking Chinese with the interests of his country at heart, as well as the great alien population residing in China can only look into the future with anxiety and apprehension. What will happen next? What is to be the outcome of these tragedies? These were questions uppermost in all minds in China and in Japan on the morning of September 24. The northern portion of Shanghai, known as Hongkew, wore the aspect of an armed camp that morning, as it has done before in other times of stress, and the inhabitants of the great port wondered if the answer to the questions in their thoughts was to be seen in the machine-guns mounted in the streets and in the hundreds of Japanese bayonets flashing in the autumn morning sunshine.

Shigeru Kawagoe, newly appointed Japanese Ambassador to China, was in Nanking late in September to open with leaders of the Chinese Government discussions at which it had been hoped confidently that various issues and questions having to do with the relations of Japan and China might, at length, be adjusted amicably. A little after 8 o'clock on the evening of Wednesday, September 23, a group of sailors on shore leave from the Japanese Cruiser *Izumo* conspicuous in their white summer uniforms were strolling on Yalu Road toward Woosung Road. This is in the very heart of what is known as "Little Tokyo," that portion of Hongkew given over almost entirely to Japanese shops and dwellings. Four of the white-clad sailors lined up with their backs to the roadway as they stood gazing into a shop window. From the darkened mouth of a nearby alleyway a pistol was fired, then a fusillade of shots shattered the tranquillity of the street.

First Class Seaman Asamitsu Taminato turned and lurched toward the road. Two of his companions, seeing that he was hurt, went to his assistance and as they struggled forward they were the target of the hidden assailants. The three sailors reached the entrance to a bookstore at the corner of Woosung Road and here Taminato collapsed and fell dead. He had been shot through the heart. Both of his companions, Second Class Seaman Yoshini Deriba and First Class Seaman Yoshitane Yawata, were seriously wounded. A fourth sailor who had been with them escaped unhurt.

Japanese Forces Take Charge

Within a space of minutes the whole district was thrown into a frenzy of excitement. Then Japanese marines and armed forces took charge of the situation, mounting machine-guns and putting out heavy forces of patrols in motors and afoot. The area of a half dozen blocks within which the shooting took place was isolated within roped barriers and no one was permitted to enter or to leave. All traffic was suspended. Audiences in two theaters were obliged to remain in their places until they were examined and released in small groups. An omnibus careened into the area to be halted brusquely and its crew, passengers, and a ticket inspector were halted for questioning, the passengers later to be sent home in private cars by the bus company.

Through the night the whole district was searched systematically, Japanese examiners going from door to door, questioning every individual. Those who were caught within the area were compelled to remain, and those who sought to return from outside to dwellings behind the ropes also were forced to stay outside until the search ended in the morning. Of the many suspects taken into custody attention was concentrated on one Chinese taken almost immediately after the shooting. It was alleged that this man, a hawker, by name of Chang Yung-wu, was seen hiding a Mauser pistol in a street sand box.

The news of the Shanghai tragedy caused consternation through all the Far East, for it was considered that consequences of the utmost gravity were almost inescapable in view of the circumstance that this outrage in the commercial heart of China follows close on the heels of a series of others in which Japanese have been victims.

"A dark shadow has been cast on the future of Sino-Japanese negotiations, which have just been inaugurated here," said Ambassador Kawagoe when informed at Nanking of the shooting. "We find ourselves face to face with a most grave situation. This latest Shanghai incident reveals that far stronger measures than heretofore considered will have to be applied. The killing of the Japanese marine in Shanghai renders the Sino-Japanese situation critical."

It was deemed probable in Tokyo after the news had been received there and following an all-night conference of officials of the Ministry of the Navy that Fleet Admiral Prince Fushimi, Chief of the Naval General Staff, would be advised to resort to decisive action in China. It was understood at the same time that instructions would be forwarded by Foreign Minister Hachiro Arita to Ambassador Kawagoe to abandon negotiations with the Chinese authorities.

"The situation is so serious," said Admiral Nagano when cancelling his intended departure from Tokyo, "that I find it impossible to accompany the Emperor to Hokkaido." It is to be explained that the Japanese Navy is on the eve of holding extensive naval maneuvers in the waters off Hokkaido, and that these are to be attended by the Emperor.

Sinister Forces in China

Veteran observers of the China scene will agree that it is exceedingly difficult at the best of times correctly to assess values of any situation in time of crisis in the country. On the record of recent events, however, several things seem to be apparent. Without concern for the rights or the wrongs of the matter, it seems that evidence is not wanting that animosities in the hearts of the Chinese for their Nipponese neighbors have not been permitted to lie latent, but have been kept aglow zealously, particularly among the younger generations. Any instructor in Chinese college or university class rooms can testify to direct personal experiences with this element in the schooling of the younger Chinese in recent times, and perhaps the most vexatious problem of pedagogism in China is how to keep students in their class and study rooms and out of politics. It is perhaps true that this situation in no least

degree has the blessing of any official sanction; it is perhaps more likely that it exists despite obstacles that officials strive to uprear against it. The force that has been exerted in the schools, where perhaps it has thrust with strongest emphasis, also has made itself felt effectively among the workers in Chinese industries and among the masses in general. What may be the source of this widespread unrest of students and workers, which ultimately can destroy the Chinese Government, has not been formally disclosed. It is to be observed, however, that in a political sense, the whole trend of the movement consistently is to the left. The thing takes on a new gravity in China these days because terrorism and assassination have become the current mode.

To take in review only recent phases, it is to be pointed out that within the space of ten months eight more or less prominent Japanese have been murdered—shot, stabbed or beaten to death in widely separated places in China, and an additional number of victims have been seriously injured by assailants. What is specially significant just now is that the tempo of this tragic record has been vastly speeded up in the past few weeks. It is understandable, therefore, why the Japanese have deemed it prudent to close their schools, why their children are warned from the streets, and why every one of the thirty thousand-odd Japanese residents of Shanghai go about in fear of their lives. These crimes of violence all have a common quality in that they all measure into the definition of atrocities. They have been mob crimes, or secret crimes, all done with a flourish, and for the most part they have gone unpunished.

Beginning of Era of Assassination

All this began in Shanghai last year when, on the night of November 9, Hideo Nakayama, a private in the Japanese naval forces, was shot through the head and killed by an assassin on a dark roadway in the northern district of Hongkew. Two months later, on January 21 of this year, Susumu Tsunoda, a Japanese consular police officer, was shot and killed by an unruly crowd of Chinese at Swatow. Murder struck again in Shanghai on July 10. Kosaku Kayau, a broker connected with the Mitsubishi Trading company, was carrying an infant in his arms that night on Chi Mei Road, a lane leading from Dixwell Road in a Japanese residential district. An unknown assassin shot him at short range through the back of the head and he died shortly afterwards in the Foo Ming hospital.

On August 24, the "Chengtu incident" took place, a mob outbreak that was staged in the Capital of Szechuen, China's most populous and richest province. A demonstration in the form of a mass meeting in one of the city's parks had been staged the afternoon of that day by communistic elements, and after an outburst of frenzied speech-making irresponsible elements of the gathering formed a mob and marched to the Tachuen Hotel where it was known a number of Japanese were guests. It has been said that this outbreak grew out of vigorous opposition of the Chinese to the reopening of a Japanese consulate at Chengtu and this question was the subject of a number of the speeches made at the afternoon mass meeting. At this time Mr. Eiichi Iwai, who had been appointed Japanese Consul at Chengtu was in Chungking on his way to the provincial Capital.

The mob attacked the Tachuen Hotel late in the afternoon. Four Japanese there had sought refuge in a room on the top floor. Of these, two newspapermen, Keiji Fukagawa, reporter for the *Shanghai Mainichi*, and Kozaburo Watanabe, correspondent for the *Osaka Mainichi*, were seized and dragged out of the place. A detachment of police that had been sent to the hotel by the Bureau of Public Safety was quickly overpowered and thrust aside by the mob, said to number two thousand. Then the two hapless newspapermen were beaten and kicked to death. Two other Japanese who had been with them in the hotel, Shoichi Seto, a Hankow merchant, and Takeo Tanaka, of the staff of the Shanghai office of the South Manchuria Railway, were manhandled and severely injured in the affair, but both these succeeded in escaping with their lives. The matter of the Chengtu incident was one of the questions to be taken up at the conferences at Nanking of Chinese officials with the Japanese Ambassador.

A fortnight after the Chengtu affair took place Jyunzo Nakano, 53 year old proprietor of a drug store at Pakhoi was murdered by a band of Chinese. Nakano had been a resident of this outpost on the Kwangtung Coast on the Gulf of Tongking for twenty years and had married a Chinese wife. It was said that this tragedy was

inspired by elements in the Nineteenth Route Army, then stationed at Pakhoi that were clamoring for war with Japan. On the evening of September 3, the band of Chinese assailants invaded the dwelling of the Japanese finding him seated at his dining table. They stabbed him to death. Following the Pakhoi murder on the night of September 19, an assassin with a pistol shot and killed Niwajiro Yoshioka, a member of the Japanese consular police force at Hankow near the boundary of the Japanese Concession on the Bund at Hankow.

Tragic Records of Thirty Days

It is thus seen that within the period of a single month five Japanese were murdered, victims of Chinese resentment and hatred. A result of the murder of the Japanese consular police officer at Hankow on September 19 was the decision of the Japanese naval authorities to dispatch reinforcements to China and by reason of this decision the Special Service Transport *Muroto* arrived in Shanghai on the morning following the shooting on Yalu Road. The marines brought to China on this transport were disembarked at the Osaka Shosen Kaisha Wharf in Wayside and while the strength of this new force was not disclosed officially it was said to number more than a thousand men, who have been quartered in the Japanese Barracks on Kiangwan Road in the north end of Shanghai.

It has been made apparent in Shanghai how intensely the Japanese military authorities desire to lay hands on those responsible for the latest outrage and in their efforts to run down the assassins they are receiving every possible aid of the Chinese police authorities of Greater Shanghai and the foreign police forces of the International and French Settlements. The state of mind to which the Japanese authorities of Shanghai have been brought by these tragedies is indicated in a measure by a penalty exacted in connection with a trifling incident which occurred in the latter part of September.

Some thoughtless idiot threw the core of a pear out of an upper window of the Happyland dance hall on North Szechuen Road. This missile might have blinded a child in the street below. Instead it hit a Japanese marine in the neck. A tremendous uproar took place, all rather out of proportion with the importance of the incident, and a frantic and futile search was made for the culprit. The Chinese proprietor of the dance hall, Hu Yung-nien, was charged with responsibility for the offence and in connection with a written apology that he submitted to the Japanese Special Naval Landing Party, he was obliged to give a pledge that he would call daily, as long as he lives, at the headquarters of the Landing Party to report on the progress of his search for the fellow who threw the pear core out of the window.

All of these crimes of violence reviewed here have a common relationship, as all of them grew from a common cause, which is Chinese hatred, and some measure of envy. It cannot be thought, however, that all of the murders were systematically planned and carried out with the forethought that would indicate organized inspiration. The murders at Swatow and at Pakhoi doubtless were only localized outbreaks, and the affair at Chengtu that cost two lives likewise probably falls into the same category. But in the crimes committed in Shanghai, and the murder at Hankow, there is apparent at once a unity of purpose and a sameness of method, which point to a single logical conclusion.

Leaders of the Nanking Government of any degree had nothing to do with these things. Whatever rancor individuals in the Government may harbor for the Japanese, it is not conceivable that they could discern any advantage in the removal of comparatively unimportant persons, or in events surely calculated to bring in their train anxiety and apprehension for Chinese administrators. It is more reasonable to believe that forces hostile to the Nanking Government and striving to embarrass that Government at all costs, planned, financed and perpetrated the murders in Shanghai and the one in Hankow. It is to be noted that in three of these four crimes lesser figures in the Japanese naval organization and in Japanese official life were victims. It is apparent that forethought and careful planning preceded all four of these crimes and this can only denote the existence of an organization, almost certainly located in Shanghai, dedicated to the assassination of Japanese, either as evidence of hatred for the Japanese, or for the purpose of embarrassing the Nanking Government, or for both motives.

What Will Happen Next ?

Up to the present this menace of assassination has aimed low, claiming as prey only victims of lesser importance, and this may indicate that the sinister force at work itself is of unimportant mentality and of small calibre in the social scale. It is rendered, in this case, all the more difficult to find and bring to justice. It will probably not be found in the purely criminal classes of Shanghai's underworld, for this is not a business calculated to appeal to the ordinary criminal, harried as he is by the forces of the law and more or less identifiable in the police records.

The murder of Nakayama last year was committed by a single individual. Only one assassin appeared on the scene when Kayau was shot in July and again when the Hankow crime was committed a single shot was fired by one assailant. The shooting of three victims in Shanghai on the night of September 23, seems to disclose that the force directing the assassinations has gained new recruits, for it was believed that a number of assailants took part in the shooting. Not less than ten shots, and perhaps more, were fired when Taminato was murdered and his two companions were wounded. There was a degree of deliberation in the shooting, for the first

shot, which found Taminato's heart, was carefully aimed. The assassin was less accurate after that first fatal shot and he fired much more rapidly. Perhaps it was due to this that Taminato's companions escaped with wounds only.

In the days following the Shanghai shooting when the Japanese naval forces were retaining control in Hongkew the authorities recovered three pistols, two near the scene where the sailors were attacked and a third elsewhere. Only one of these three weapons was used in the actual shooting, it appears, for the other two bore no evidences of having been fired recently. The other, a Mauser pistol found in a public sand box in the alley in which the assassin or assassins had stood, it was believed had discharged ten shots. The authorities did not disclose whether bullets fired in the attack on the sailors came from the barrel of the Mauser or, in fact, whether the weapon itself had been traced.

On the afternoon of September 25, big guns boomed ominously aboard the Japanese Cruiser *Izumo*, moored near the Japanese Consulate-General. This was a naval salute given in connection with funeral rites that were held aboard the warship over the remains of First Class Seaman Asamitsu Taminato, victim of the Shanghai assassin.

An Analysis of Russo-Japanese Relations

By Dr. KUO PING-CHIA, Professor of History, National Wu-Han University

(TRANSLATED FROM "FOREIGN AFFAIRS REVIEW" VOL. VII, No. 1)

JAPAN and Russia are traditional rivals in the Far East, owing to their geographical proximity and conflicting foreign policies. Strained relations have existed between the two ever since their early struggle for the Korean Peninsula; and were worsened by Japan's forcible seizure of the rights and privileges enjoyed by Russia in Manchuria as a result of the Russo-Japanese War of 1904.

Soviet Russia has been in constant fear that Japan's continued penetration of the Asiatic Mainland would jeopardize her territory in the Far East and possibly bottle-up her outlet on the Pacific. Japan, on the other hand, can never be satisfied in her expansion policy to have a hostile and menacing Soviet Union in such close proximity. Despite the tension now existing it is doubtful whether the much-talked-of war between socialist Russia and imperialistic Japan will break out just yet, because there are other factors which may indefinitely postpone, if not permanently preclude, what some regard as an inevitable conflict.

Although so many minor "incidents" have occurred, the crux of the Russo-Japanese problem seems to lie in their bitter struggle for Outer Mongolia. Japan's continued efforts to draw this territory away from the Russian sphere of influence have increased the hatred of the Soviets toward the Island Empire. As early as 1913 the South Manchuria Railway Company sent a secret mission to Outer Mongolia to win over that territory which had been regarded as an integral part of Russia, and during the Revolution of 1917, Japan again seized the opportunity to instigate the White Russians under Semenoff to create disturbances in Outer Mongolia.

After the Mukden Incident of September, 1931, which subsequently led to her occupation of Manchuria, Japan again intensified her efforts toward the penetration of Outer Mongolia. She lost no time in pushing on railway construction in Manchuria in order to shorten the distance between Japan made "Manchoukuo" and Outer Mongolia. For instance, the extension of the Kirin line to Korea and the Chinese Eastern Railway to Manchuli after the latter was purchased from the Soviet Union shows the extent of energetic Japanese military preparations in Manchuria.

Japan's Moves in the North

By adroit maneuvering during the past few months Japan has gained military hegemony in Inner Mongolia. The province of Chahar has been almost completely secured from the jurisdiction of the Nanking Government, with "Manchoukuo" troops straddling

the Kalgan-Urga road and occupying nearly the whole of the province northward of the Great Wall. Kalgan, the principal gateway to west Mongolia, is virtually under Japanese control, a Japanese mission having been established there since the latter part of last year.

Japanese activities in this region are to be interpreted in terms of Russo-Japanese strategy; for Japan's ultimate occupation of Inner Mongolia will pave the way for her advance toward Outer Mongolia. For this reason large Japanese forces have been sent to the Mongolian border. A military academy has been established at Taonan for training Mongolian youths as the vanguard ready to march into Outer Mongolia.

Moscow, however, is watching every move of the Japanese with unconcealed anxiety. Since Japan's seizure of Manchuria Russia has been unremittedly engaged in strengthening military defences in Outer Mongolia. Barracks capable of accommodating 17,000 men have been built at Urga, and huge airdrome aviation schools have been established for the training of Mongols.

Warlike preparations are also being made by the Soviet along Lake Baikal. The completion of the Chita-Blagovestchensk Railway and the proposed construction of a new line from Lake Baikal to Outer Mongolia are apparently intended to facilitate the movement of troops and supplies in the event of war with Japan. Simultaneous with railway construction, efforts are being made for the development of mining and agricultural industries in Outer Mongolia, so that there need be no fear of shortage of food supplies in time of war.

Probabilities in the Situation

The continued feverish military preparations made by Japan and Soviet Russia in Manchuria and Outer Mongolia respectively suggest that a conflict between these two is inevitable but it is still a question when the expected war will start. If Japan should realize the immense difficulty of dealing with such a powerful rival as Soviet Russia and make reasonable concessions, war may be averted, for the Soviets will seek to avoid a conflict at any cost unless her territorial integrity is imperilled. On the other hand, if the Island Empire should decide to wage war on the Soviets, she is not yet ready to strike, for she has not consolidated her position in North China.

Financially Japan is not in a position to start a war at the present moment. Indicative of the stringency of the financial situation in Japan. Huge deficits amounting to Y.800,000,000 have

been incurred during the past two years and to make up this shortage the Japanese Government has resorted to the issuance of domestic loans, thus enhancing the burden of the people.

Turning to the diplomatic line-up of the two Powers, the recent conclusion of the Franco-Soviet Mutual Assistance Pact has greatly strengthened the diplomatic position of the Soviet Union. This serves as a true indication of Moscow's firm determination in not yielding to Japanese pressure in the Far East; for such a move will lessen the possibility of Germany giving assistance to Japan in the event of a Russo-Japanese war. On the other hand, Nipponese war-lords are cognizant of the fact that to strike at the Russian bear at the present moment will involve much risk. Some believe that the speeches recently made by Japanese military and diplomatic leaders, challenging the Soviet Union, are capable of interpretation as evidence of the bellicose intentions of militaristic Japan.

In the course of a speech delivered at an extraordinary session of the House of Peers on May 6, Mr. Arita, Japanese Foreign Minister, said: "The present relations between Japan and the Soviet Union cannot be said to be altogether felicitous. The fundamental cause lies in the lack of comprehension on the part of Soviet statesmen of Japan's position in East Asia, coupled with their baseless fears and suspicions. The fact that the Soviet Union maintains excessive armaments at remote outposts in the Far East constitutes a real menace to peace in this part of the world."

Soviet Far Eastern Forces

General Count Terauchi, the Japanese War Minister, at a secret session of the Diet on May 11, declared that relations between Japan and the Soviet Union had grown worse instead of better since the Soviet first proposed a non-aggression pact. Asserting that Russia had not discarded her policy of Bolshevizing the world, the War Minister said that "the construction by Russia of numerous forts on the Manchurian-Soviet frontiers is, from Japan's point of

view, undoubtedly aggressive. According to reliable reports the Soviet Far Eastern forces exceed 200,000 men, with a possibility of reaching 300,000 in the future. In addition there are 50 submarines in Vladivostok and an air fleet capable of raiding Japan cities. Outer Mongolia is under the complete control of Russia, and this tends to the encirclement of 'Manchoukuo.' The situation was such that Japan has found it necessary to station considerable strength in Manchuria. We have opposed the conclusion of a non-aggression pact with Russia, because we do not regard the Soviet's proposal of much value."

In reality, these utterances from Japanese diplomatic and military leaders cannot be taken as an indication that Japan is determined to strike at their chief antagonist on the Asiatic Mainland. In making such speeches the Japanese statesmen had an axe to grind. It is obvious that Japan has been in a state of militant exaltation since her occupation of Manchuria. The huge sums of money expended on military equipment and preparations have plunged the Empire into serious economic unrest, which has aroused general dislike for war among the masses. In view of this situation the Army, the driving force in Japan, has to resort to measures to check the activities of reactionaries and at the same time give much publicity to her aggressive policy toward China and Outer Mongolia.

Fearing that their activities in China may give rise to unfavorable reaction from other Powers, the Japanese have launched an extensive anti-Red campaign with a view to obtaining some support and sympathy among Western Powers, which may give Japan a free hand in North China in dealing with Red Russia. Furthermore, Japan's anti-Soviet propaganda is intended to attract the attention of those Powers which are friendly to Soviet Russia. It is therefore clear that Japan is not yet fully prepared for war, and that Soviet Russia is determined to maintain peace in the Far East and will compromise so long as she is not attacked. The next move depends upon Japan.

Anglo-Russian and Anglo-Japanese Relationships

By CHIANG CHIA-SUNG

(TRANSLATED FROM WORLD CULTURE, VOL. 4, No. 11)

As was expected, no sooner had Great Britain concluded a naval pact and a trade loan agreement with Soviet Russia than the Gaimusho began to advocate closer relations between Great Britain and Japan. Now, to examine the significance of this move, let us first try to see what Great Britain had in mind when she signed agreements with a nation whose social system is entirely different from hers.

Great Britain is an old-established, and imperialistic nation, while Soviet Russia is a new and the only Socialistic State in the world, but Great Britain had been a veteran leader and "strong man" in all international events. Even after the World War she has not lost out, though America has been competing for her place in world affairs, while France was vying with her in Western Europe for supremacy. True to the characteristics of a leader, Great Britain took the courageous step of allying with Soviet Russia before anyone else, in spite of the fact that it was Great Britain who took the lead in sending troops into Russia immediately after the Great War, and it was partly for her purpose of Suppressing Soviet Russia that the League of Nations and the Locarno Agreement were formed. That Great Britain took the step of professing friendship for Russia is not surprising, as she wants to capitalize this to impress both Germany and Japan, both of these nations having been annoying her. Germany under Hitler has been gaining power, has thrown the Versailles Treaty to the winds, and is doing her utmost to re-arm, while Japan is encroaching upon China's territories, putting Great Britain in a very awkward position. The next step Germany will take may be to re-occupy the colonies she lost in the war, while Japan will virtually drive Great Britain out of the China market.

For the last two years Britain's attitude towards Russia has been one of inconstancy. For instance, at the beginning of the talk initiated by France and Soviet Russia for the signing of a non-aggression pact in Eastern Europe, a British diplomatic representative made a special visit to Moscow to express sympathy with Soviet Russia in the move, yet in the end Britain did not agree to the conclusion of the pact. However, though there is contradiction in the subjective and objective aim of Britain in her relationship with Soviet Russia, the latter was making great progress in her positive diplomacy. She won many concessions from Great Britain, probably because the latter was rather disgruntled by the German-Italian accord.

Anglo-Soviet Pacts

The Anglo-Soviet Naval Pact was concluded in July this year, and the terms include total agreement by both signatories to the London Naval Pact signed by Great Britain, United States, and France, and other two main points:—(1) Each party to notify the other of its building program (2) the qualitative limitation of major ships, tonnage being restricted to 35,000 tons. There are some other points relative to the Pacific which have not been made known to the public. The validity of this agreement is subject to agreement by other Powers indirectly concerned, particularly Germany.

The trade loan agreement between Great Britain and Soviet Russia was also concluded in July this year, and calls for a loan of £50 million from Great Britain for five years at 5½% per annum. The loan was especially welcome to British exporters as they

expect to do a lot of business with a thriving nation ; and at the same time it is also an indication that Russia has developed to such an extent that she can absorb what British factories have to offer. The Head of the International Trade Bureau of Soviet Russia has stated that this agreement is prelude to economic co-operation between the two nations.

The reasons for such an understanding between the two nations may be given as (1) The success of Soviet Russia both in her reconstruction and in her positive peaceful diplomacy, (2) the decline of British capitalism, (3) the German-Japan *rapprochement*, which threatens the position of Great Britain. But behind it all it may be said that Great Britain allied herself with Soviet Russia, in spite of the latter's social system being entirely different, because she wants to keep the peace at present at all costs. Great Britain can still exert strong power in keeping world peace, but if it were not because of the pressure brought against her by Germany, Italy, and Japan, it is doubtful whether she would have tried as she has to keep peace. Unless the people of England rose against the present so-called "National" Government (in reality it is dominated by the Conservatives) and put a Labor Government in power, England would not be a stabilizing force in collective security, as France is at present.

Anglo-Japanese Relations

As regards the relationship between Great Britain and Japan, three important points must be mentioned. (1) Other things being equal, both have the same attitude towards Soviet Russia, (2) though Japan's positive policy towards China is a menace to British trade, England at present is not prepared to make an issue of it with Japan, (3) Japan and England are keen competitors for trade in British colonies, but this is limited to light industries only. Therefore, though an Anglo-Japanese Alliance such as that existing before the World War is practically impossible, there will not be any conflict between the two, because, in the first place, Great Britain is no longer in the strong position she was, and, secondly, she has a bigger problem in her own economic system to solve. This is why Great Britain and Japan have not had any major disagreements, with the exception of the Washington Conference, when together with the United States she restricted Japan's encroachment upon China.

But successive events since the Mukden incident have opened the eyes of the British, and so, with the view to finding some way for improving relations with Japan, England sent her chief financial expert, Sir Frederick Leith-Ross, to China. Sir Frederick went to Japan twice, but did not succeed in lining up leaders in support of his plans. In the end Britain tacitly gave in to Japan, as can be seen in Sir Frederick's statement at the time of his departure, though in the meantime Japan went ahead with her scheme of aggression against China. What is more, the present "National" Government leaders, such as Baldwin and Hoare, still dream of an Anglo-Japanese Alliance, and have positively stated that "China cannot do anything without Japan's co-operation."

Reactions Seen in Tokyo

Of course, this does not mean that the Conservatives in the British Government are unmindful of the fact that Japan is taking every opportunity to further her imperialistic designs, and here is where the Anglo-Soviet Naval Pact and Trade Loan Agreement come in. As soon as the news was released about these agreements, Tokyo was greatly concerned. The Japanese Ambassador in London immediately sent a report on the attitude of the British Government and at the same time Japan was ready to assure Britain that Japan has no territorial designs on China, and will respect the rights and privileges of Great Britain in China. She also craves Great Britain's understanding of her position as the stabilizing influence for peace in the Far East. Japan further seeks an opportunity to have a talk with England with a view to coming to some understanding.

At the beginning of August both London and Tokyo were replete with news of Japan's activities in her attempts to effect better relations between the two nations. The Japanese Ambassador in London received specific instructions from his Foreign Minister to line up such men as Chamberlain, Eden, and Hoare with a view to making an alliance, thus revealing the consternation of Japan since Great Britain entered into an agreement with Soviet Russia.

A prominent Japanese writer says :—"Great Britain used to side with Japan in order to check Soviet Russia's development in the West, but now she co-operates with Russia in order to check Japan's aggression on China. She did this because Japan's action was a menace to British interests in China, and Britain is losing her naval supremacy in the South Seas, British Malaya, and Australia on account of the increased power of the Japanese navy." The same writer also stated there are two questions demanding immediate solution—(1) to what extent can Japan and Britain co-operate in the Far East, particularly in China, and (2) how can a naval agreement be reached? Lately Mr. Arita has stated that "the high lights of the nation's foreign policy is that *vis-à-vis* Soviet Russia . . . and the improvement of relationship between Japan and England."

The former Japanese Ambassador to London, on returning to Tokyo, made the statement that "most of the members of the Labor Party are against Japan, and regard Japan as an aggressive nation ; but they have a very sympathetic attitude towards Soviet Russia. The Conservatives have just the opposite opinion. They would like to see England and Japan in alliance again."

From the point of view of China, the Anglo-Russian alliance is a great factor in keeping peace in the Far East and the world. As regards an Anglo-Japanese alliance, certainly we shall raise no objection to it provided it does not affect China, but judging from history, it is hardly possible that China can escape unharmed if the two Powers should come to some understanding. We must be careful, and if we want to exist as a nation, must exert all our efforts to keep our territories intact.

COLOMBO WATER PROJECT

Recommendations involving the acquisition of extensive tracts of land in the vicinity of the present reservoir at Labugama, in connection with the four million rupee scheme for the augmentation of the Colombo Water Supply, have, it is understood, been made by the Four Standing Committees of the Colombo Municipal Council.

The recommendations are based on a report received from England from Dr. L. Fabian Hirst, retired City Microbiologist, who was asked to report on the project.

In accordance with Dr. Hirst's report, the Four Standing Committees of the Council, it is learnt, have made the following recommendations :—

(1) The acquisition of approximately 600 acres comprising the site of the improved storage reservoir (adjoining Labugama), and the surrounding margin.

(2) The acquisition of all habitations in close proximity to the above area or to the banks of the main feeder streams in the Kalatuwewa catchment.

(3) The acquisition of any habita-catchment area, found to be incapable of effective sanitary control.

(4) Provision of means of access for the Waterworks Staff to all feeder streams.

(5) Adequate powers of control over the entire catchment area for the prevention of pollution of human origin.

It will be recalled that following proposals contained in the scheme, framed by Mr. W. M. Thyne, retired Waterworks Engineer, the details of which were originally published in these columns in February last, the Mayor of Colombo communicated with the Minister of Local Administration reporting upon the proposed augmentation system, requesting that the question of acquisition be considered.

The Executive Committee of Local Administration, however, demanded a precise statement of the extent of the land necessary to be acquired for the scheme in view of the evacuation and large dehousing involved in the scheme as outlined by Mr. Thyne.

The Municipal Council, thereupon, decided to call for a report from Dr. Fabian Hirst on the question of the extent of the land to be acquired so as to secure a sufficient safeguarding of the new catchment area from pollution.

Providing Dr. Hirst's recommendations, as approved by the Four Standing Committees, are accepted by the Municipal Council, the Mayor states that he is now in a position to inform the Executive Committee of Local Administration precisely of the Council's immediate acquisition requirements.

"Wrong Horse Harry" Rides Again

The Dangerous Mr. Stimson Writes a Book

THAT rare and beautiful thing, the truth—they say—hurts. And this precious commodity, like gold, is where one finds it, but assuredly it exists, as pilgrims relate, at the American Capital in Washington—among the men who write the world's history from day to day on typewriters under green lamp shades. The great Roosevelt, the First, himself a robust stickler for the verities, understood these gentry. He used to greet them briskly at the weekly press conferences, with a characteristic quirk of inversion, molars smilingly gleaming,—“Good morning, liars.” Yes, it is among these architects of the headlines that the truth abides, and in the clipped argot of the craft, that tells a life history in a phrase, a volume in a word, she stands forth naked and unabashed. It was in the inner councils of this cult years ago that the light was focussed briefly on Col. Henry L. Stimson, one time Governor-General of the Philippines, Secretary of State in the Cabinet of Former President Hoover, and distinguished exemplar of the American aristocracy. The newspapermen called him “Wrong Horse Harry.”

Colonel Stimson, it may be remembered, was the man who wrote all the notes and protests to Japan back in 1932 when he was the American Secretary of State. At the same time he was volunteer mentor and steersman for the League of Nations, letter writer and speech-maker extraordinary, as well as self-appointed “pact protector” for all of the sixty-two nations that signed the Kellogg-Briand Treaty, and by inference, from his own public utterances, representative also for the fifty-odd nations of the membership of the League, to which the United States has never belonged.

The Aim of the Pacifists

This whole cycle of activities was dedicated to a single purpose, which was to thrust the United States into the leadership of a movement, with other world powers if possible, otherwise alone, to penalize Japan for her action in Manchuria. In the course of a remarkable address that Colonel Stimson delivered before the Council of Foreign Relations in New York at the time that the Commission of Enquiry of the League of Nations was studying the Manchurian problem, and when international feeling was at the point of greatest tension, Colonel Stimson, talking about the Kellogg-Briand Treaty, said:—

“As it stands the only limitation to the broad covenant against war is the right of self-defense. This right is so inherent and universal that it was deemed unnecessary even to insert it expressly in the treaty.”

This, of course, was but a repetition of a well-established tenet of international law, but it was a fully adequate presentation of the whole Japanese contention with regard to what was done in Manchuria. Tokyo holds to this contention still and, showing the realities on which it was based, points to the frontier of Manchuria as it is to-day with its unbroken line of steel and concrete fortifications to the sea, and the Far Eastern Army of the Russian Soviets, a force of three hundred thousand, motorized, mechanized and equipped for every known form of modern warfare.

Pacifist of the pacifists, Colonel Stimson was prepared to have the United States fight a costly, destructive, profitless war to preserve world peace and he holds firmly to-day to the belief that his ideals and morality are right and that Nipponese ideals and morality are wrong. To put forward his views again and to review his earlier activities he has written a book, which perhaps has attracted more attention abroad than at home, because however much China and some European powers may cling to the hope, it is undoubtedly a valid certainty that the American people have no notion whatever to-day of fighting a war with Japan, if this thought ever did have potency in the States.

On simon pure moral grounds Colonel Stimson is unassailable. Freely it may be conceded that the chastity of his motives can no more be questioned than the *bona fides* of those who burned the witches at Salem long ago. Colonel Stimson was dangerous precisely because of the ruthless sincerity of his altruism which he

felt he had to exhibit before the whole world. A dash of venality in his individual cosmos might have had actual value as a lubricant in the international machinery of that time, and some measure of discreet reticence would have helped more. But that is never the Stimson way.

An Incident of the Past

Two years before the Manchurian disturbance took place Russian and Chinese forces were engaged in an obscure and abortive conflict that the rest of the world scarcely was aware of, but it did not escape the notice of Colonel Stimson and he did not let pass the opportunity to thrust the United States into the thick of it, to admonish and scold the disturbers of the peace. This, as it turned out, was a lamentably mistaken course of action.

This was in 1929 and Russia and China were actually negotiating an adjustment of their differences, without any third-party interference. It was at this juncture that Colonel Stimson as the American Secretary of State forwarded a communication in formal terms to Russia and to China. It was necessary to send the note to Russia through the French Government, for the United States at that time had not recognized the Government of the Soviets. China remained tranquil about it, but the Russians were plainly irked, and they responded swiftly by slapping the American Secretary of State smartly on the wrist—so to speak. The two notes from Washington solemnly had called the attention of the Governments of China and Russia to the provisions of the Kellogg-Briand Treaty and, as usual, had suggested that other powers should follow the lead the United States had taken in the affair. Also, as usual, none did. Russia's “mind your own business” reply was given in these words. “The move of the United States, since direct negotiations have been started, cannot be regarded as a friendly act.” The note went on further to remind the American Secretary of State that the Kellogg-Briand Treaty did not confer upon any state or group of states the function of “Pact Protector.” This jolt to the dignity of the Washington Administration failed to dent the complacency of the Secretary of State, for it was only shortly afterwards that he referred to the incident in a public address. His words on that occasion carried the direct intimation that his official action had had the effect of ending the Sino-Russian conflict!

Reactions All Along the Line

“Far Eastern Crisis, Recollections and Observations,” by Colonel Stimson, published by the Council of Foreign Relations in New York, revives dying hopes in China, fans into life again smouldering embers of Japanese resentment, enthuses Moscow, flicks the interest of European continental capitals and stirs up quite a jolly dither in British political life, if one may judge from published references to the book. It is noteworthy that those who applauded Colonel Stimson in 1932 again are clapping hands.

Great Britain, probably, and other European powers, certainly, would shed no tears of anguish over the destruction of the assets, trade and commercial interests Americans hold in the Far East and the blasting of the Empire of Japan—inescapable consequences of a war between Japan and the United States. For Russia this would mean unopposed control of all Asia and this is the factor touching Great Britain which may furnish the reason, left undisclosed in Colonel Stimson's work, why his telephone calls and discussions with Sir John Simon in 1932 were so singularly unproductive of effect.

“I talked with Sir John Simon again on the same subject in London on February 13 and 15,” Colonel Stimson explains in the book after telling of the futile transatlantic telephone conversations, “and while no explicit refusal of my suggestion was ever made, I finally became convinced from his attitude that the British Government felt reluctant to join in such a *démarche*. Therefore I pressed no further.” Colonel Stimson's specific idea at that time, as he explains in his book, was to induce Great Britain to co-operate with the United States in invoking the Nine Power Treaty with the purpose of balking Japanese action.

The author says that he "pressed no further" after the rebuff from London, but those who observed the trend of things at that time cannot accept this as quite accurate, for it was immediately following the fruitless discussions with Sir John Simon that Colonel Stimson ignited the fuse to the fire-cracker, which is remembered as the "letter to Senator Borah." A little later in New York he delivered the address before the Council of Foreign Relations, which called forth swift and bitter criticism from a large number of leading American newspapers. Typical of many others the conservative *Chicago Tribune* said in an editorial.

"If Americans regard experience at all they will realize that it is under such gradual and accumulating irritations that wars are made, and they will not permit idealistic aspirations to obscure practical probabilities. They will also understand that American policy, or at any rate the conduct of our foreign affairs by our government at this time, has placed us athwart the cherished ambitions and purposes of a powerful nation, a nation which does not share our government's zeal for altruistic experiment, but is bent upon making the utmost use of every opportunity to advance what it profoundly cherishes for the profit and progress of its own people."

Another Viewpoint

The *New York News* dealing with the address of Colonel Stimson expressed the opinion that he was "the most dangerous man in the Hoover Government."

"We think this," the writer continued, "because of Mr. Stimson's ironclad custom of telling other countries what and what not to do, chiefly in the matter of making war. We don't know whether Mr. Stimson is a dry or not, but, like most pacifists, he has the prohibitionist mind when it comes to war. Therefore, Mr. Stimson insists on telling others that they shall not fight. And by doing so he is dragging us ever closer to the day when some fighting cock of a nation will knock the pacifist chip off our shoulder and say, 'Well, so what?'"

"Mr. Stimson has just picked again on the twentieth century's prime fighting cock, Japan. In a provocative and inflammatory speech in New York, Colonel Stimson once more raked Japan over the coals because of Japan's Manchurian conquests. He went on to intimate that the United States would lead most of the other nations in an attempt to make Japan halt and retreat, if Japan wouldn't do so voluntarily. That is another objection we have to Mr. Stimson—that he always nominates the United States to take the lead in these crusades for world peace. And he always makes his provocative remarks out loud for world-wide publication. Discretion seem not to be in him. He lacks the tact of MacDonald and the finesse of the late Briand.

"Colonel Stimson in this same speech illustrated the amazing inconsistency of the single-track pacifist mind. He reiterated his statement of last January that the United States would recognize no changes brought about by force in Manchuria. Well, how did the United States get its territory? We killed off the Indians. We fought England. We fought Mexico for Texas and part of California, Spain for the Philippines. We even tried to capture Canada twice—but unfortunately failed. Do we have to give these territories back under the Stimson doctrine?

"No, we don't. For it is this same Colonel Stimson who insists that we shall hold on to the Philippines, our weak salient and our great war-bait in the Far East. And it is this same Colonel Stimson who strings along with President Hoover on

the proposition that, instead of building up our Navy to enforce the Hoover-Stimson will to peace on the rest of the world, we must tear our Navy down. It is far less than Britain's now, and inferior to Japan's in battle strength on the Asiatic side of the Pacific.

"Could any foreign policy be more foolish, more dangerous? We can imagine none that could be; or that could be better calculated, if persisted in, to drag us into a war some day to the great surprise of the most of us. For most of us take no interest in Mr. Stimson's well-meant efforts to make old Mr. Kellogg's dream of world peace come true. But the unnoticed Stimson goings-on are probably the most important, because the most dangerous, things being done in this country to-day."

"Me unt Gott"

Through the period of his public life and to-day with all the prestige of his earlier prominence as a member of a President's Cabinet, Colonel Stimson has displayed an unwillingness or an inability to grasp any viewpoint alien to that he holds. And with regard to Far Eastern affairs it seems that he is so rash as to be contemptuous of opinion opposed to his own, ever insisting that the right must prevail—the right as he interprets it. In American life he has stood forth as spokesman for an element, vociferous on both sides of the Atlantic, that is distinctly dangerous. The unbridled passion to order the affairs of other people, without regard and without preparation for consequences, that afflicts an important section of American officialdom is a sinister force in American public life that quite possibly one day can bring disaster to the nation. A writer in the *Detroit Free Press* some time ago sounded an apt warning in this connection.

"There is no evidence," he wrote, "that the United States was ever specially appointed by God to be a judge between other Nations that get into a quarrel, or to take sides in every international row which may arise, in order that the righteous shall inherit the earth and the wicked be sent to their own place; and the further the Government in Washington keeps away from any idea that it has a special judicial mandate from the Almighty, the better."

A Red Light Ahead

In other words, it would seem to be desirable for Colonel Stimson and those of his creed to face the stark reality that this is a wicked, eminently practical world. Berlin, Paris, Moscow and London all will give due heed to Colonel Stimson's book and will print profundities of opinion about it. Every high school pupil in Japan will digest and discuss it. How deep will be the impression the book makes on the American mind at home? Is it possible to-day, or will it be possible six months hence to discover a single ordinary citizen in the American hinterland able even to remember who was Secretary of State in the Hoover Cabinet, or have any ideas about his activities? He should be able to answer, for Colonel Stimson's efforts quite possibly may put a rifle into the ordinary citizen's hands and start him marching—toward the Far East.

In all of this Colonel Stimson is not to be seen as an individual, for in any such aspect he stands blameless. But, in simple terms, he does appear to represent the one important force in American life most surely calculated to thrust the nation into another war. Nor in this record is any pretense intended that this is a critique, or an attempt to review Colonel Stimson's book. The writer confesses, in fact, that he has not yet read the book. He has seen portions of it in published reviews, however, and also he remembers the summation of the newspapermen at Washington.—val.

Japanese Shipyards Busy

According to Japanese newspapers there is a shipbuilding boom in Japan. With all yards working day and night, from 160,000 to 170,000 tons are being launched every month, yet there are a lot of outstanding orders. As a matter of fact, most yards find it difficult to accept new contracts unless for delivery after the end of next year. It is stated that many shipowners are now considering the possibility of placing orders with shipyards abroad. But as most representative shipbuilders abroad are also busy, it

is highly doubtful whether they can effect delivery any earlier than Japanese yards, and import duty and other special expenses must be taken into consideration. Moreover, it is difficult to obtain the Government's approval for foreign orders. In the event of the projected shipbuilding scheme under a State subsidy materializing, the shortage of slipways will become even more keenly pronounced. Nowadays Japanese shipbuilders can build a 4,000 to 6,000 ton vessel in four months.—*Lloyd's List*.

Shanghailander in Japan

By RANDALL GOULD, Editor, *The Shanghai Evening Post and Mercury*

A SHANGHAI resident visiting Japan finds himself in a land as strange to him, though but a few hours' steaming from home, as does the traveller from America or Europe. Contrasts are as sharp, methods of life and procedure virtually as different.

In some respects the voyager from Western countries will even find more in Japan resembling his homeland than will the holiday-seeker from China. For Japan has, after all, set its eyes on the Occident and taken its eyes from China as model; while China as a nation still tends to grope by comparison, and international huddle-muddle Shanghai is like nothing on earth although unflattering comparisons are made with such spots as Port Said.

What is more, unless one has seen Japan very recently there are such rapid changes apparent that in landing here one has the sensation of jumping off a fast-moving train save that the progressions are reversed and it is the platform which is whirling by, the bewildered new-arrival who is static.

Only the calm temples of Kyoto, and of Nara, Ise, Nikko and other cases of placidity in the midst of Japan's wild rush in what seems to be all directions simultaneously are unchanged and unchanging. Incense stings the nostrils as in years and centuries past; the sudden shaking boom of a temple gong, the swelling hum of Buddhist chanting, echo down the ages with a pledge of inner stability for a nation externally altering almost too fast for eye to follow.

Trips to Nanking, Nanchang and a few other China cities nowadays leave the "old China hand" with a very decided feeling that China is modernizing rapidly, by former standards. But nowhere in China does one encounter the curious tension and energy of which one becomes conscious instantly upon landing at any major port of Japan.

This is not to imply an atmosphere of rush. China gives that. A mob of Chinese luggage and ricksha coolies awaiting the arrival of any steamship, ocean or river, presents one of the maddest scenes earth can furnish; part of this indescribable excitement is just a part of the general Chinese enjoyment of confusion and loud noise, but part of it also represents desperate struggle to eke out any sort of living in a world difficult beyond Western concept. Plenty of people in Japan are having trouble in making ends meet but one would never realize it when one's ship lands at Kobe or Yokohama. The coolies are disciplined and regimented baggage is handled in leisurely fashion, there is no clamor over the "pay-off," and if one insists upon hiring one of the few rickshas in preference to the numerous light American taxis, the relatively high cost—ordinarily at least as high as a taxi—in no wise inspires the well-clad well-fed puller to exert himself beyond a slow jog, or even a walk if a suitcase is included in the load.

Despite this difference in initial impacts, the feeling in a Japanese city is one of thrust, enterprise, modern progress, as contrasted with the swarming but somehow pointless life in a Chinese city. If one can sum up the impression it is that in Japan one sees united pull-together enterprise designed to construct big stores, to keep monster factories' chimneys smoking, even to discipline individual thought and act, while in China one still finds individual thrusting the predominant feature of life in a country whose leaders cry out for national unity but obviously have far to go to achieve it.

Tension is a state of affairs hard to define, but it runs through all life in Japan to-day if a brief chance visitor may pose as judge. It certainly is manifest in the attitude and life of virtually all foreigners dwelling in the country, and they feel they are reflecting what is about them.

"Everything is changed since the 'incident' (the army mutiny of last February)" is a remark often heard. Just what is meant by this remark, how far it is valid and how far it covers a general situation prevailing before the "incident," it is difficult to judge within a few days but the various explanations and elucidations are interesting.

Some say that the army has "lost face" irretrievably. Regarded as a last solid rock in a whirling torrent, it was disclosed as by no means the stable and dependable element in Japanese national life which it had been thought. Many are on the alert for provoca-

tive acts in China or against Soviet Russia as an army maneuver to regain lost leadership and public esteem.

Another view is that Japanese as a whole have lost a degree of their national self-assurance (some put it as "cockiness") through this revelation that the revered army has feet of clay. At the same time it is vigorously denied in other quarters that any feet of clay have been disclosed, the motives of the mutineers are guardedly defended in some quarters both foreign and Japanese, and it is felt that only unfortunate "breaks" of one sort or another prevented the mutineers from assuming the status of national heroes.

But with all this talk, it certainly seems that Japan's foreigners have a severe case of the fidgets which they feel to be warranted by feelings and events about them. They say the people are not anti-foreign but that many officials are; many seem to think that any major development either domestic or foreign should well be a signal for all foreign residents to clear out of the country. That seems an exaggerated view to the visitor. But those staying long in the country are undeniably under some odd psychological pressure.

Advice to the newcomer: Limit the amount of money in your pocket. It will be charmed out in a small but steady trickle which will wear away your financial reserve as water wears away a stone. Japan was never so full of tempting gimcracks at low prices. If even the old-timers can't always resist, how can the new arrival?

Every city has its specialties, of course. In Kyoto there are objects of art, some very high priced (but worth the money), some priced down to a few sen (but most certainly worth the money). A person who is travelling light, financially and as regards baggage must restrict himself to relatively cheap purchases but there are dozens and scores of things not only to be had, but well-nigh impossible to resist. A few years ago one was chiefly attracted by "netzukes"—little carved objects intended to be worn on the end of the thong attached to a Japanese man's tobacco pouch—and similar curios, but to-day there are so many things not merely of ivory but of cheaper materials such as bamboo, tin, cardboard and paper, that it is a wonder if one can return from the shortest walk without an armful.

This might include a pack of materials for a Japanese garden including a neat little water-wheel and carved people, a doll seated in kimono before her mirror on a tiny tatami-floor, a pair of good straw slippers for about three American cents, a tortoise-shell cigaret case from Nagasaki, some damascene cuff-links, a two-inch theatrical stage complete with actors, a perfect toy airplane and possibly samples of the numerous war weapons with which Japanese merchants play their part to militarize the mind of the younger generation. Of course the kimono, both in Japanese despised garish export version and lovely plainer higher-quality "old-style" kimono, still reigns among the supreme purchases, along with the outer coat or haori; these in a great variety, are to be had at low cost, along with everything else.

All these purchases are available not because of the foreigner but because the Japanese himself, though living at a level far below that of the foreigner (though over that of the Chinese) is an inveterate knick-knack buyer. He keeps his country's manufacturing costs down by capacity to do without motor-cars and other things deemed necessary by workers in other industrial lands, but still a very large part of his budget goes to foolish little methods of entertaining himself and his family.

Femininity in one phase or another continues to strike the visitor at every turn. Women are everywhere in evidence running the shops and giving life and color to the cafes and coffee-shops in which Tokyo in particular abounds, and even "manning" the buses; less obvious to the eye are the many thousands of girls in Japan's great factories.

The traditional geisha entertainers remain to embellish banquets of the high officials and rich businessmen, but for entertainment the ordinary man turns to the cheap modern bars (many serving excellent American-style ice cream sodas!) and taxi dance halls.

There Japan's surplus of girlpower makes itself fully in evidence as dainty young ladies flutter about, in kimono or occasionally

(Continued on page 421)

Aurora University of Shanghai

Famous Center of Learning Opens Magnificent New Building

AN outstanding event in the history of the great University of Aurora took place Saturday, September 12, when a magnificent new building, the finest and most modern of the group that stand on the seventeen acres on both sides of Avenue Dubail near Rue Lafayette, formally was thrown open. A great gathering that included leading educators and officials of all nationalities was present at the opening exercises which took place at 4 o'clock in the afternoon. An important detail in connection with the opening exercises was an exhibit of books, ancient and modern, and engravings and artistic bindings, which recently have been brought to China from France. This exhibit of books, engravings and bindings was held under the patronage of His Excellency the French Minister, Mr. Naggair.

Messrs. Minutti & Company, the architects of the new building, prepared no less than a dozen sets of designs before final selection was made, and the impressive structure as it stands to-day, four-square, of modern design, with simple classic lines, was erected. It is a striking, colorful feature in an appropriate setting with its facing of crimson tiles and grey stone trimmings, and the wide hospitable central entrance and the numerous huge windows tell of the airy, well-lighted interiors. It is a structure of four stories above a basement and it faces to the north dominating that portion of the University grounds to the west of Avenue Dubail, an area of slightly less than ten acres. The wide acres of the athletic grounds of the University afford an unrestricted view from the front of the new building, and across the athletic field from the new building stands the Eglise St. Pierre, the church completed two years ago. This portion of the University grounds, taking in the area between Avenue Dubail and Rue Massenet, has a length, from north to south, of some 750 feet and a width, from east to west, of about 560 feet. Adjoining the new building and possessing the same frontage is the present Auditorium of the University, a structure erected some eight years ago, and on the tract also are a number of temporary buildings, including an anatomical laboratory, a students' dormitory, students' restaurant and immediately behind the church, a conservatory.

Plans for Future

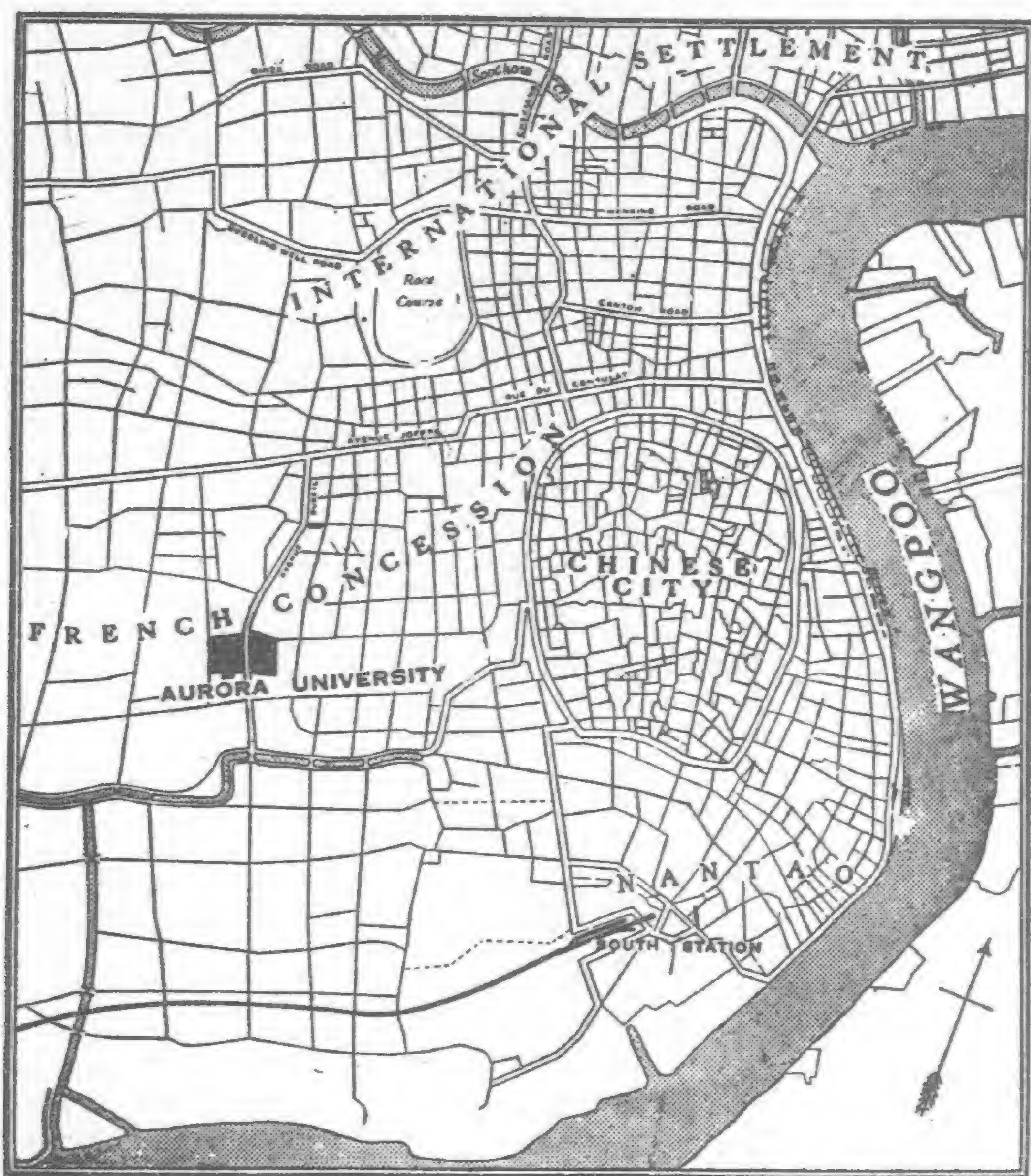
The new building, which has been completed at a cost of upwards of \$400,000, and which for the present is complete in itself, is a detail only of a major building program drawn up years ago by the officers of the University. Ultimately the building just completed will be the eastern wing of a central structure to be erected in the future and this is to have as a western wing a structure similar in all details to the building now being brought into use. When in the near future actual work is begun by faculty and student body in the new building the University buildings on the eastern side of Avenue Dubail will be reserved for preparatory courses and as dormitories.

It should be explained, perhaps, that the University of Aurora, born of Chinese initiative, was founded in 1903 by French missionaries and is the second largest privately organized university in China. It is not a religious institution in any degree, for, although it remains under the direction of French Jesuits, it has no department of theology, it offers no courses of an ecclesiastical nature and it imposes no required chapel or church attendance on its students, the great majority of whom, in fact, are non-Christian. The general purpose of the founders and of those who have carried forward the work of the University has been "to give to young men who have finished their secondary studies that higher education needed in order to complete their intellectual formation," and a special aim is to offer the Chinese student in his own country all the advantages which he goes abroad to seek, often at price of great sacrifices. Entrance requirements at Aurora impose no restrictions having to do with race or creed. In the student body, numbering about six hundred, thirteen nationalities are represented.

When the University's whole building plan is brought to realization in the future the length of the main structure, in which the present new building will be but one wing, will run to 450 feet. As it stands to-day the overall length of the new structure is sixty meters, or 196.8 feet, and its depth nineteen meters, or 62.32 feet. The facilities of the new building, including a great library, are



The new building of Aurora University, opened on September 12, 1936



Map of South-western section of Shanghai showing location of Aurora University

to be placed at the disposal of the three main departments of the University, the Department of Medicine, the Department of Law, and the Department of Sciences. One of the main chambers on the first floor connected with the library will be opened to the general public. In the commodious and well-lighted basement will be four laboratories of the pre-medical courses, and in the north-east corner of the basement is the modern steam-heating plant of the building.

The Symbol of Aurora

An artistic detail that arrests attention in the central corridor opening from the main entrance to the building is the huge window set in the south wall commanding the main entrance. In this, fashioned in a striking design in tessellated translucent glass, is the traditional symbol of Aurora. In the window in sharp outline is pictured the figure of a cock crowing lustily at the great shining orb of the rising sun. This unique work of art is the product of Chinese craftsmen in the glass works at Tousewei who constructed the window from an original design of a gifted Jesuit artist.

On this main floor of the new building are the administrative offices and reception rooms occupying the eastern end of the floor. On the western side are two class rooms and, along the front of the building, the bacteriological laboratory. The University's physics laboratory and the chemistry laboratory are not to be removed at this time from the buildings in which they are located on the eastern side of Avenue Dubail.

A broad flight of stairs leads from the main floor of the first floor where are located the library, reading rooms and reference rooms. It is in this portion of the building that the exhibition of books, engravings and bindings was held in connection with the opening of the building. Immediately above the library rooms on the second floor are seven large class rooms, in addition to several smaller study and conference rooms. On the third floor up another flight of stairs are four class rooms and at the western end of the corridor on this floor, extending across the width of the building is a large specially designed and specially lighted chamber equipped for the work of student draughtsmen. The main feature of this third floor, however, is the great Assembly Hall on the eastern side of the building. This large hall, approximately sixty feet square has no pillars to obstruct the vision, as it is open to the roof with a ceiling height of about twenty feet. An audience of four

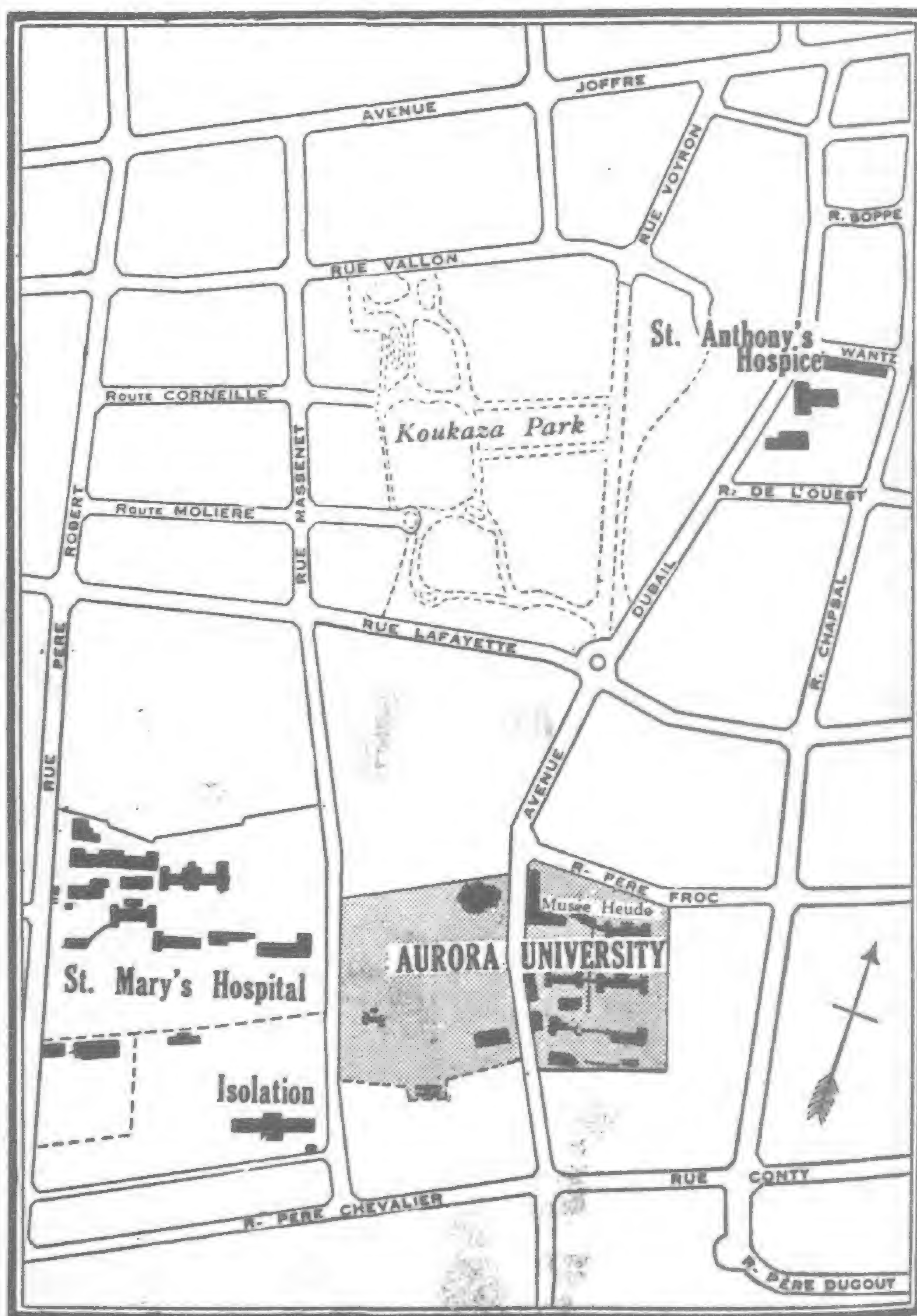
hundred can easily be accommodated in this chamber, connected with which are two lesser class rooms in the rear.

The class rooms on this third floor, which is the top floor, in general are to be devoted to higher mathematics and engineering sciences and for these purposes the rooms will be fitted with much elaborate special equipment. Throughout, the building is designed and equipped to achieve the greatest possible conveniences for students and professors alike and details have been planned with such forethought that the activities of students and professors in each of the several departments cannot conflict or become confused at any point. Above the western portion of the third floor is an extensive attic space well-lighted by skylights in the roof and having an eight-foot ceiling. This space is to be used for storage and special uses that may arise.

Each of the main floors of the buildings has its wide central corridor running from east to west, but for architectural reasons these corridors are not exactly centered, so that on the various floors rooms at the back of the building, or on the south side of corridors, are slightly wider than those in front, or on the north side of the corridors. The rooms in the rear in general are eight meters wide, those in front, six meters. When the University work is actively begun by students in the new building the Medical Department will be brought more closely into touch with St. Marie's Hospital, which is under the same administration as Aurora University, and quicker access will be afforded to students and professors to the grounds of the Hospital directly across Rue Massenet.

The University Library

The great library of the University which is to be housed in the new building merits special description. By an ingenious and thoughtfully planned architectural device the whole eastern end



Another map of the location of Aurora University showing adjacent location of St. Mary's Hospital and St. Anthony's Hospice which are connected with the University

of the building, from the first floor to the roof has been set aside for books. In a space roughly fifty by thirty feet, the first, second and third floors and the attic floors have been sub-divided into eight lesser stories connected by stairways and in this condensed space stand the specially arranged and specially manufactured ranks of steel shelves that hold the books, all catalogued, cross-indexed and stored in their particular sections ready for use. From various levels on which the book shelves stand a small electric lift communicates with the reading rooms and on this books may be conveyed back and forth as needed without loss of time.

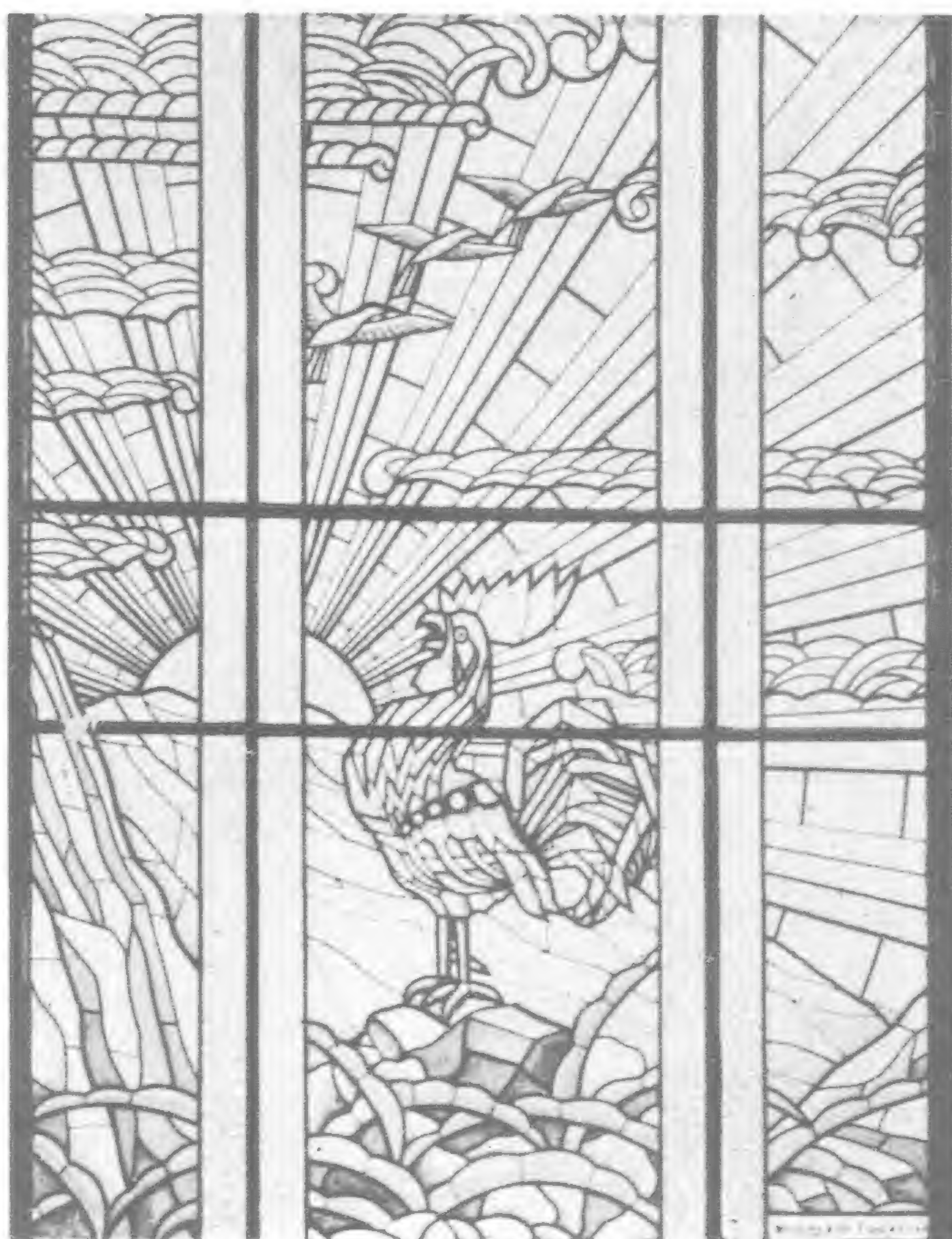
Two large reading rooms are provided in the library. The larger, for the use of students, has seats for 214 individuals. The smaller reading room, which is open to the general public, has fifty seats. Both reading rooms communicate directly with the catalogue room. In the cataloguing of the books the most modern library practice has been followed and all the volumes in the library are listed alphabetically by title and by name of author, besides which a system of cross-indexing is being introduced and the whole system has been made applicable to the listing of the large library of Chinese books included in the University library. In the library in the new University building, in addition to the catalogue of books of Aurora University, a complete catalogue of the Chinese books and manuscripts in the great library at Zikawei also is available for the use of students and for the public as well.

Each of the levels in the vertical section where the books are kept has two tiers of steel shelves and the shelves, having a depth of about one foot, are so arranged that any book may be reached conveniently by hand so that the necessity to use ladders is avoided. The tiers of shelves are separated by passages three feet in width and every detail of the volumes on the shelves is made visible from overhead lights. The floors of these levels are of polished cement tinted red and the entire space is kept scrupulously clean and free from dust by a vacuum suction system. Each of the levels has 170 meters of shelving and in each 34,000 volumes can be stored, making an available capacity of 272,000 books. At the present time the University library, large as it is, has books barely sufficient to fill the shelves on four of the levels, about 136,000 volumes. The steel shelves were specially designed and manufactured at the metal works at Tousewei. It was found necessary when the shelves were being manufactured, with side steel supports being punched so that the shelves might be adjusted to suit differing heights of volumes, to produce a special cutting and folding machine. Even with this help the work of producing the shelving for the library consumed just a fortnight less than six months.

Incidental to the opening of the new University building the surface of the athletic grounds, fronting the new building and rated as one of the best playing fields in Shanghai, is being raised and re-sodded. This will make the surface of the field conform with drainage requirements in relation to the surface height of Avenue Dubail, which owing to tidal flooding was considerably raised recently by the French Municipality.

The History of Aurora

The history of Aurora University is just a continuation of the centuries old record of the work of the Jesuits in China, begun in the 17th century. In 1842 the Jesuits returned to China. It was not long before they were devoting themselves with great energy to the task of laboring among the educated class, a task so ably



Traditional Symbol of Aurora, a striking work of art as a window set in the south wall of the new building fashioned from tessellated translucent glass, a product of the Tousewei Glass Works, operated by the Jesuit Fathers

carried on by their predecessors of the 17th and 18th centuries—Ricci, Schall and Verbiest.

On two separate occasions their ambitions were on the point of realization. First, in 1860, but more especially at the end of the 19th century, at the time of the "reformist" movement. In July, 1898, Mr. Liang Ch'i-ch'ao, one of the principal leaders of the movement, asked through the Minister of France at Peking His Excellency, Bishop Garnier of Kiang-nan, to authorize Mr. Ma Hsiang-pai, distinguished Christian scholar, to assume the direction of a "College of Translators" which it was proposed to found in the capital. Mr. Ma Hsiang pai suggested to the Imperial Court that the proposed school should be in Shanghai. Besides, he laid down as a condition of his acceptance that the Fathers of Zikawei should have part in the enterprise. He received full approbation.

This plan for a University was suddenly interrupted by the coup d'état of the Empress Tzu-hsi. However, the movement was begun. New circumstances arose. Another appeal was made to Mr. Ma Hsiang-pai. It came this time not from official circles, but from some young scholars who were anxious to secure truly learned and disinterested professors.

At the beginning of 1903, Mr. Ma Hsiang-pai, then in retirement at Tousewei, received a visit from three professors of Nanyang College, followed soon after by some students of the same institution. They came to ask him to open a school for them, promising that they would recruit the students. Mr. Ma received his young visitors kindly and presented their request to the Superiors of the Mission. It was decided that the Fathers would collaborate.

The new school was established near the end of February, 1903; classes commenced on the first of March, with twenty students. *Aurora* was the name given the new school, a name which bespoke its great hopes. The young students asked, in the first place, for lessons in Philosophy and Latin. In the following months lessons in French and English were added, these latter being given by the Fathers of Zikawei.

The buildings of the old Meteorological Observatory were put at the disposition of Mr. Ma and his young friends. They were located not far from the Residence of the Fathers, and hence it was easy for the Fathers to come and go to the school several times a day. Early in 1904 the number of students had already quadrupled. Mr. Ma judged that the time for expansion had come. He asked the Reverend Father Superior of the Mission to assist him as much as he possibly could. Father F. Perrin, a missionary in Anhwei, was called to Shanghai and became Prefect of Studies of the embryo University.

Among the notables who lent substantial assistance to the Aurora, two deserve special mention. Mr. Chang-chien, the great industrial leader of Tung-chou, afterwards Minister of Commerce, an Academician highly esteemed, offered his patronage. Mr. Li Ping-shu, well known in Shanghai, showed a lively interest in the program of the students and made frequent visits to the University to address them.

Fr. Perrin, continuing in his duties as Prefect, was the main-spring of the work. The Father Director composed many school manuals, borrowing much from the Chinese Classics. In his translations relived the customs and usages of antiquity. Already familiar with the ideas, the pupil easily retained the text in a foreign language. These pedagogical manuals enjoyed a real success at Aurora and also in schools in the interior of China where they spread very rapidly. However, they were not given entirely

to these imitations of Chinese authors. In the third year Preparatory Department and the first year of the Superior Course, pages chosen from French authors were also put into the hands of the students; Fenelon was explained and Racine read. In recent times one of the pupils of that epoch in speaking with his former professor of French recalled the classes in which they tried to get at least a glimpse of the beauties of Britannicus.

The enrollment of 94 students in 1905-1906 was increased in 1906-1907 to 172. Even though the number of students increased, the relations between professors and pupils remained very cordial, simple and sincere: it was a real family spirit that reigned.

Installation at Loukawei

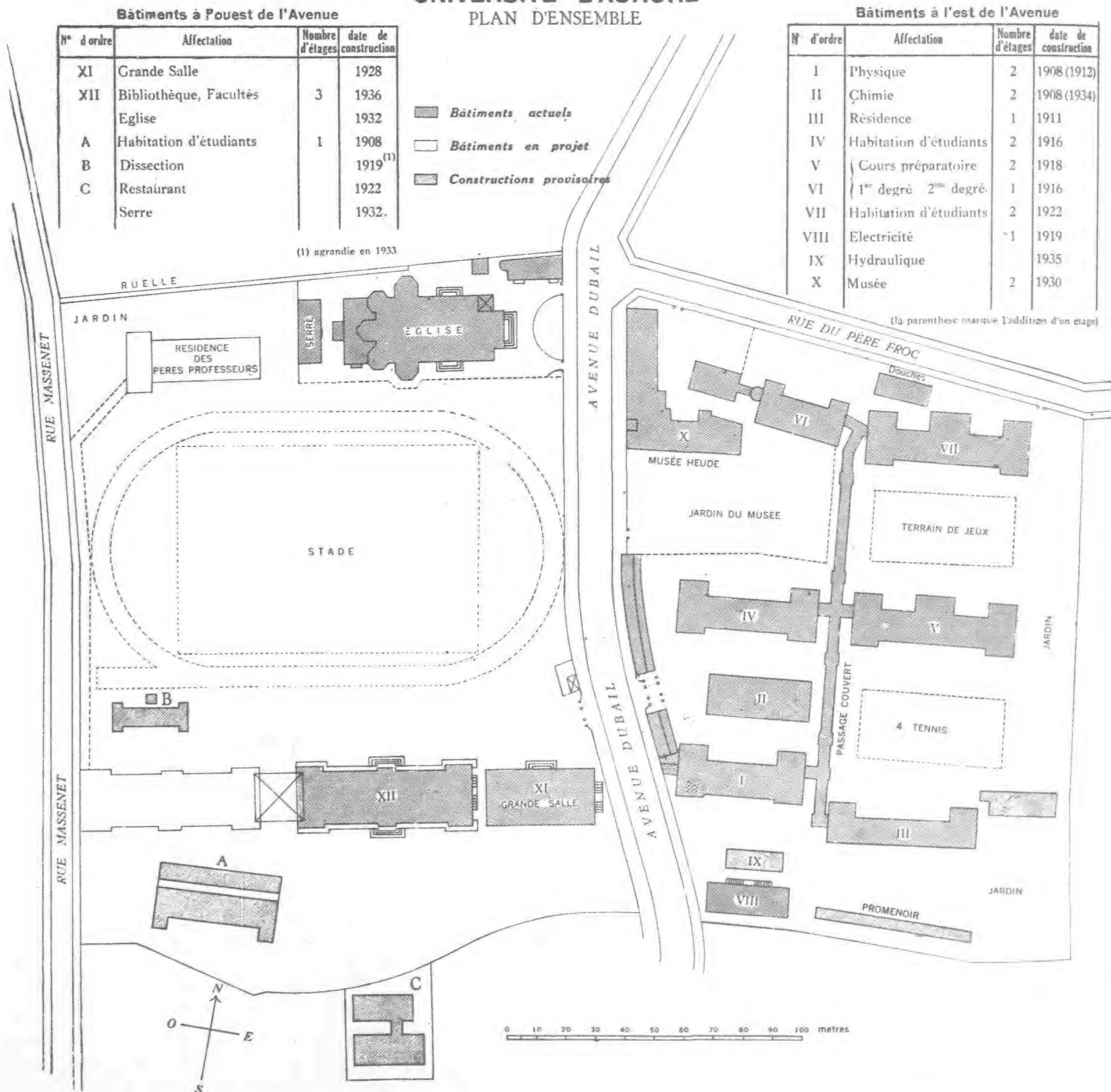
In April, 1908, it was decided that Aurora should be situated nearer the city of Shanghai and so it was moved to its present location at Loukawei, midway between Shanghai and Zikawei. Some land had been acquired on both sides of Avenue Dubail on

which it would be possible to construct suitable buildings as the future progress of the University would demand. Only outside pupils were admitted to follow the courses, but soon, since many came in from distant Provinces and could not find convenient living accommodations in Shanghai, a temporary dormitory was opened for them to the west of Avenue Dubail, the class buildings being to the east. The new location at Loukawei is adjacent to St. Mary's Hospital. For several years Superiors devoted a great amount of energy to the establishment of a Faculty of Medicine. They were supported in this, it will be seen, by generous friends who followed with interest the development of Aurora. However, the time was not yet ripe for such a large undertaking.

Father P. H. Allain, having been named Director of the University, arranged a new program of studies. This was to be improved still further in 1912. The general idea was as follows:

"This University aims to make it possible for young Chinese to study European sciences and to give them a higher education which they would otherwise have to seek in Europe or America.

UNIVERSITÉ L'AURORE PLAN D'ENSEMBLE

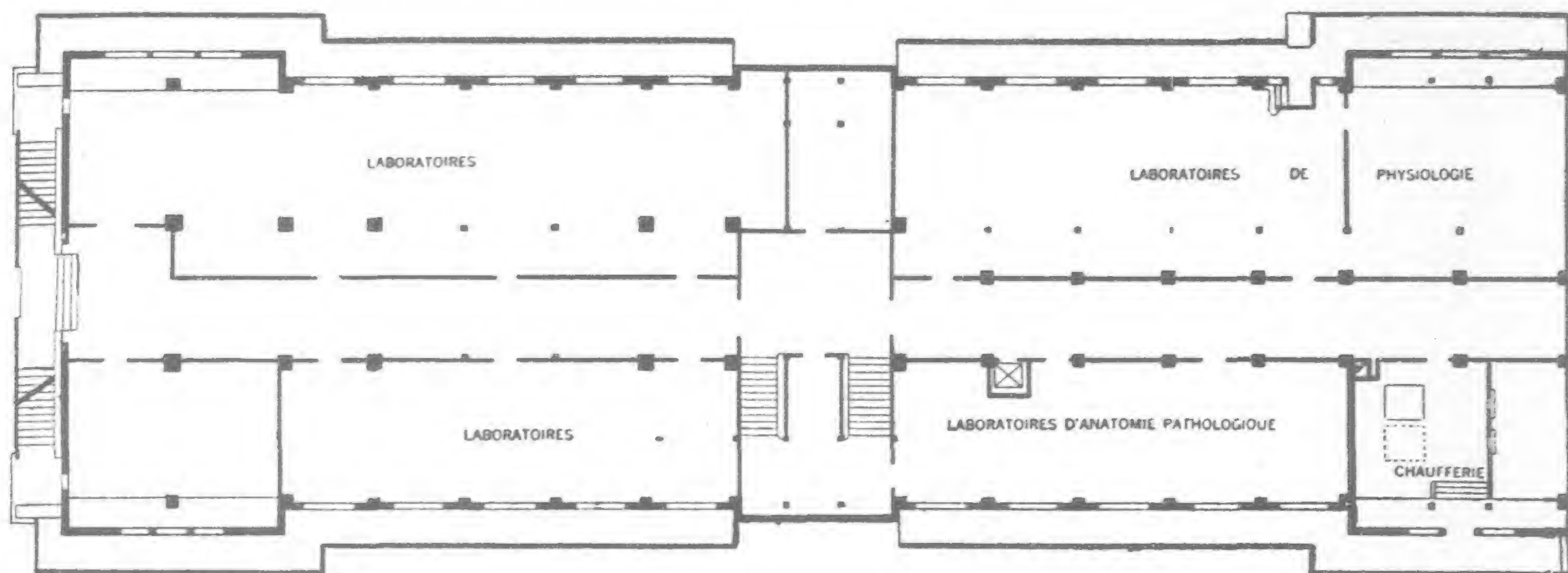


To this end, courses are given similar to those in foreign universities."

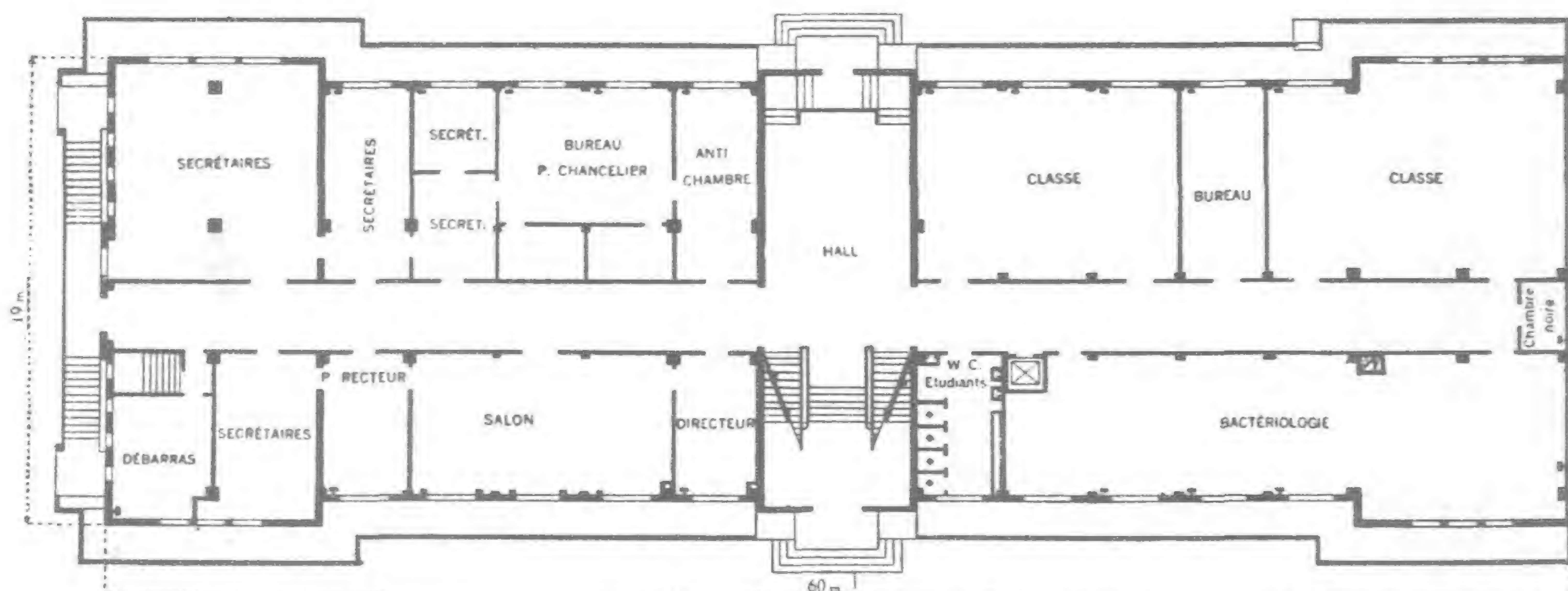
The University kept the Preparatory Course and the Superior Course separated. The first was a three year course, with a program resembling that of the French Baccalaureate (French, English, history, geography, elementary mathematics, physical and natural sciences, philosophy). At the end of three years, the pupils who

had successfully passed their examinations, received a diploma admitting them to the Superior Course.

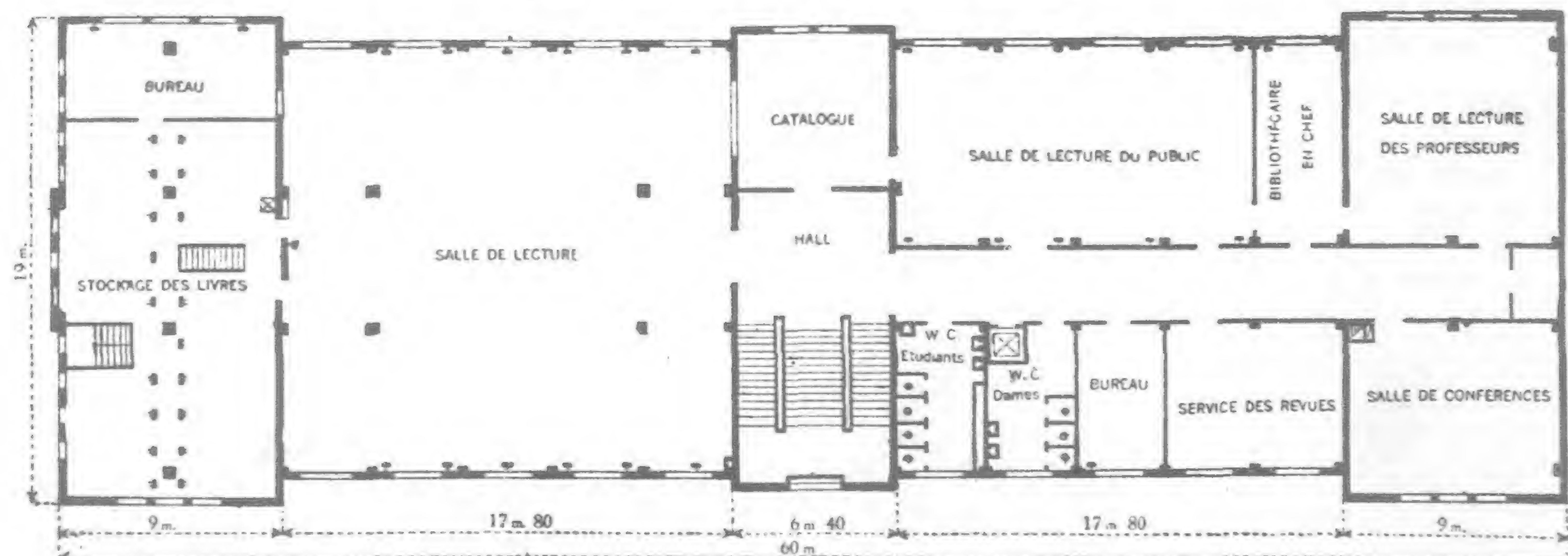
This latter also extended through three years; it was divided into two sections: Science and Literature. The first section comprised the teaching of special mathematics, physics and chemistry, geology, mineralogy, hygiene. Different technical courses were projected. The second section comprised a serious program of the



Plan of the basement of the new building where are four laboratories of the Pre-Medical courses



Plan of the ground floor of the new building



Plan of the first floor of the new building on which the library reading rooms are located

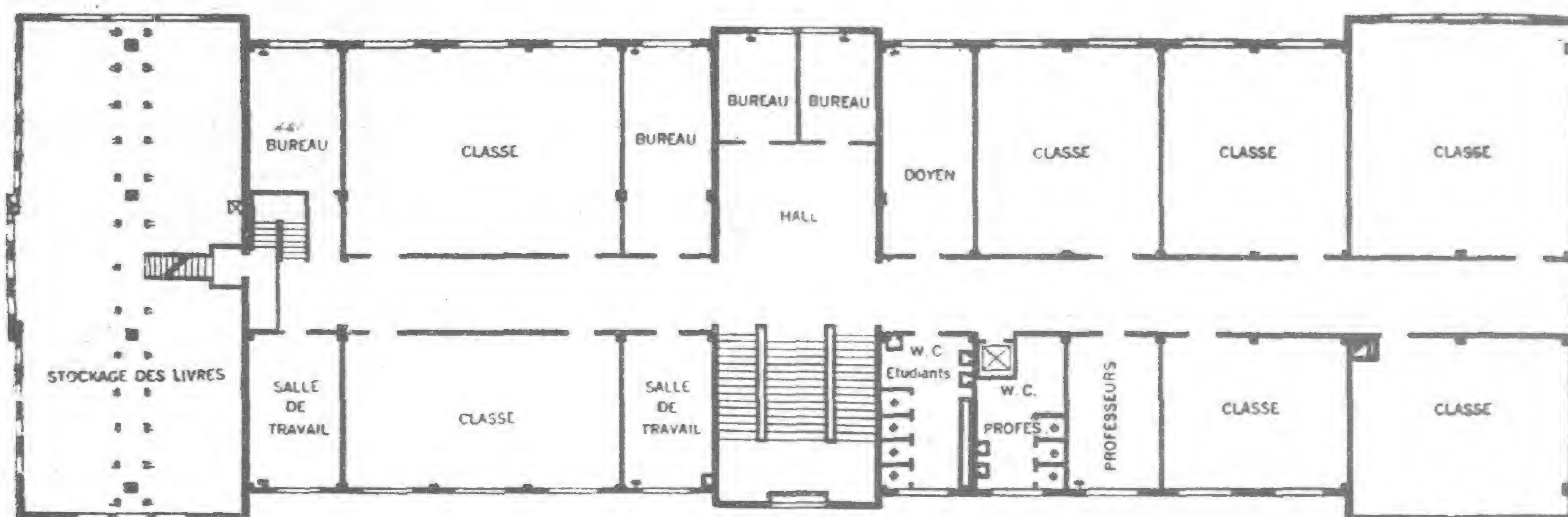
French and English language and literature, history, geography, the elements of civil, international and administrative law, to which were added courses in bookkeeping. The students who succeeded in their examinations received a diploma equivalent to the Licentiate in Science and Literature.

Recollections of Father Allain

Fr. Allain depicts for us the student of that heroic epoch. His recollections seem the more characteristic in that they underline the material difficulties of the establishment at Loukawei and the goodwill of the students in overcoming all these difficulties.

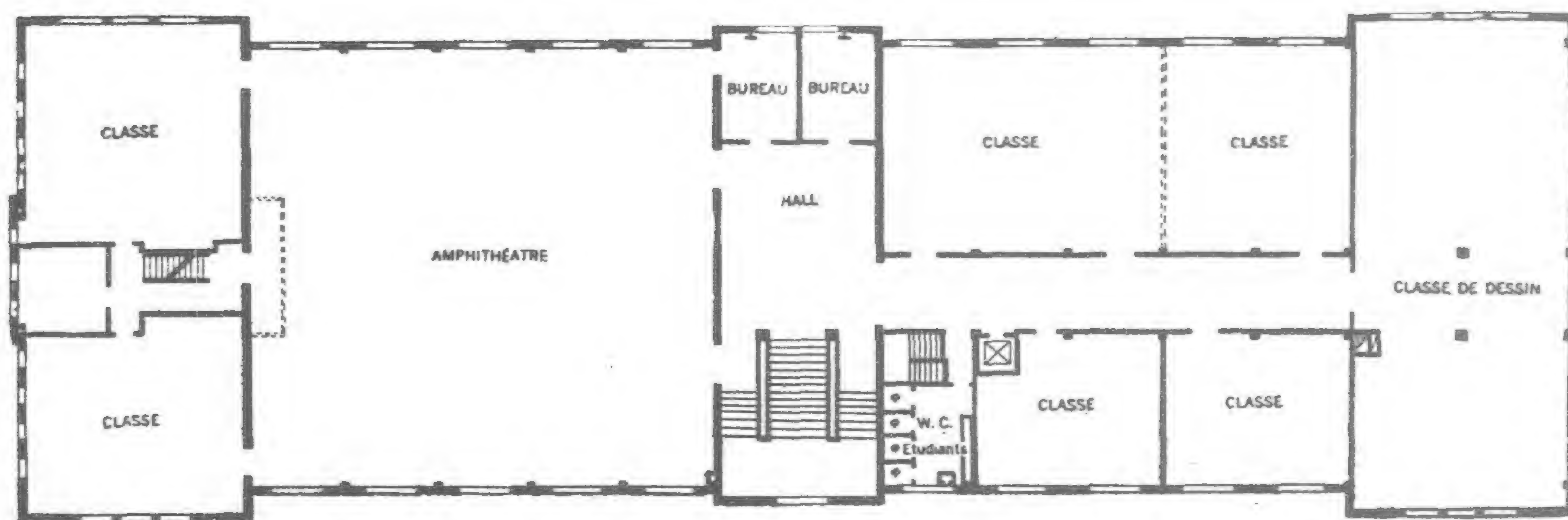
"When, in 1908, Aurora moved from Zikawei to Loukawei, it was located on what seemed to be a desert. A palisade of bamboo pressed close to the Chemistry building and the parallel building to the south. No other ground was free except the space left between the two buildings and a narrow court in front of the terrace. There was hardly a house in the neighborhood. It was necessary to install the professors on the property and to provide place for 130 or 135 pupils. The professors occupied the house to the south, the hall being divided by light partitions to accommodate the classes held there.

"The students sought lodgings as near as possible to the school, but many had to go as far away as the edge of the old Chinese City.



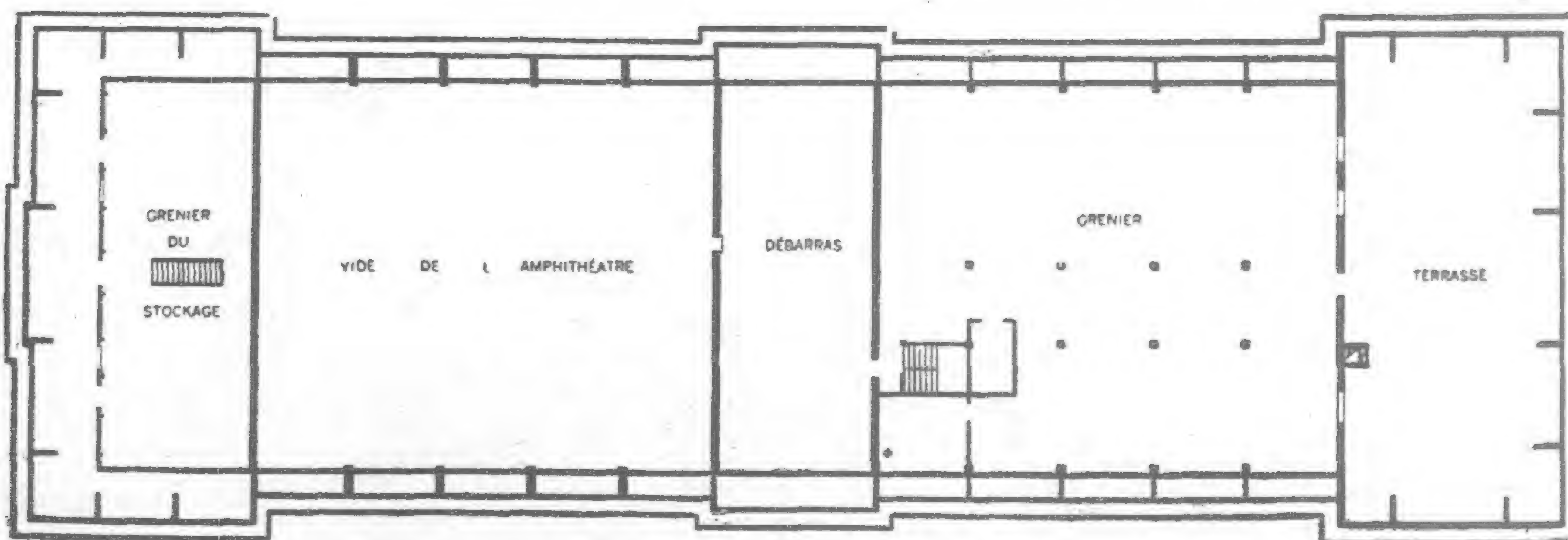
MINUTTI & Cie

Plan of the second floor of the new building



MINUTTI & Cie

Plan of the third floor of the new building on which the assembly hall and large draughting room are located



MINUTTI & Cie

Plan of attic of the new building

On rainy days it required will power to be present at the different classes. That energy was never wanting.

"The situation was somewhat improved the second semester. A suitable lodging was prepared on the other side of Avenue Dubail and most of the students roomed there. One of the patrons took over the administrations of the house and the management of the personnel. At the same time the land bordering Avenue Dubail was prepared for an athletic field and for military exercises. The period of heroism for the students was over, but it now began for the professors. In the summer of 1909 they moved some distance away, and hence had to go to and fro to their classes at least twice daily.

"During this period discipline was maintained with no great difficulty. The enthusiasm for work was remarkable. When they were well established in their new home, most of the students gave themselves up to assiduous study, some with fury even. Even at this day we remember that light burned before 5 o'clock in the morning in a room of four model students who had retired only shortly before midnight. It was doubtless overdoing it, but many others, more moderate, also showed excellent results. After twenty years this pleasant recollection is still fresh.

"The courses were not indeed those that they later became, but there was no hesitation about putting upon them the label of a University program. In 1909-1910 an engineer inaugurated some technical courses, and Dr. Ricou proposed to initiate the students into the study of Medicine."

The Father then concludes: "Many of the students of that period are prominent men to-day. The alumni have preserved friendly relations with their alma mater, never hesitating to testify to their gratitude for the education received and their sympathies for the teachers who gave it to them. How often have we heard from Missionaries in the interior of the country that on their journeys graduates of Aurora have frequently come up and presented themselves as old Aurorans and offered their services."

In 1910, Rev. Fr. de Lapparent succeeded Fr. Allain in the office of Director.

The Reputation of Aurora

The progress of the school was noticeable; its reputation increased constantly. Manifestations of this encouraged both professors and pupils alike. At the beginning of the year 1913, Mr. Ma Hsiang-pai wrote from the Ministry of Public Instruction at Peking:

"We hear great praises here of Aurora University. The Minister of Public Instruction has in my presence on several different occasions expressed the flattering opinion which he holds of it, as has also the President of the Republic."

As the time for awarding the first degrees was approaching, Mr. Ma lent his service in requesting the Chinese Government for official recognition for the University and thus recognition was obtained in 1912.

Growth of the Faculties

Although no modification of the program of 1908 was made, the Director had constantly before his mind the future of the young University. Already the diverse tendencies of the students were perceived and it was not difficult to determine towards what careers their preferences led them.



A view of the new building when in the final stages of construction

The Faculty of Medicine was an especial object of their desires, the more so that so many eminent patrons were striving for its realization, promising their hearty support. As has already mentioned, Dr. Ricou had interested himself in two young men who were following the pre-medical course. He began to train these young students at the hospital. To-day they are the Doctors Wang Cheng-chih and Chu Cheng-tsung.

It was at this time that the famous booklet of Dr. Eugene Vincent, Associate Professor of the Faculty of Medicine of Lyons, appeared. This booklet contained some pages which were very eulogistic of Aurora. It gave a brief history of its foundation, its constant progress; it insisted upon the recognition of its diplomas by the Chinese Government and finally remarked that its graduates were, with those of Nanyang, recognized electors and eligible for membership on the Council and that the highest of the promotion of 1912 at the University of Peking came from Aurora.

The Chinese authorities, said Dr. Vincent, were tireless in proclaiming their satisfaction. The Doctor wished that the University had the sympathies of France as well.

We cannot follow Dr. Vincent in all his very interesting arguments, but one clear, precise and objective idea resumes it all: that there should exist between China and France an arrangement regarding the Faculty of Medicine organized at Shanghai by the Society of Jesus.

The war of 1914 intervened, suspending for a time these lofty plans, but they were not forgotten and every possible advantage was taken of circumstances. At the beginning of August, 1914, Rev. Fr. Fournier took over the direction of Aurora. With a mind

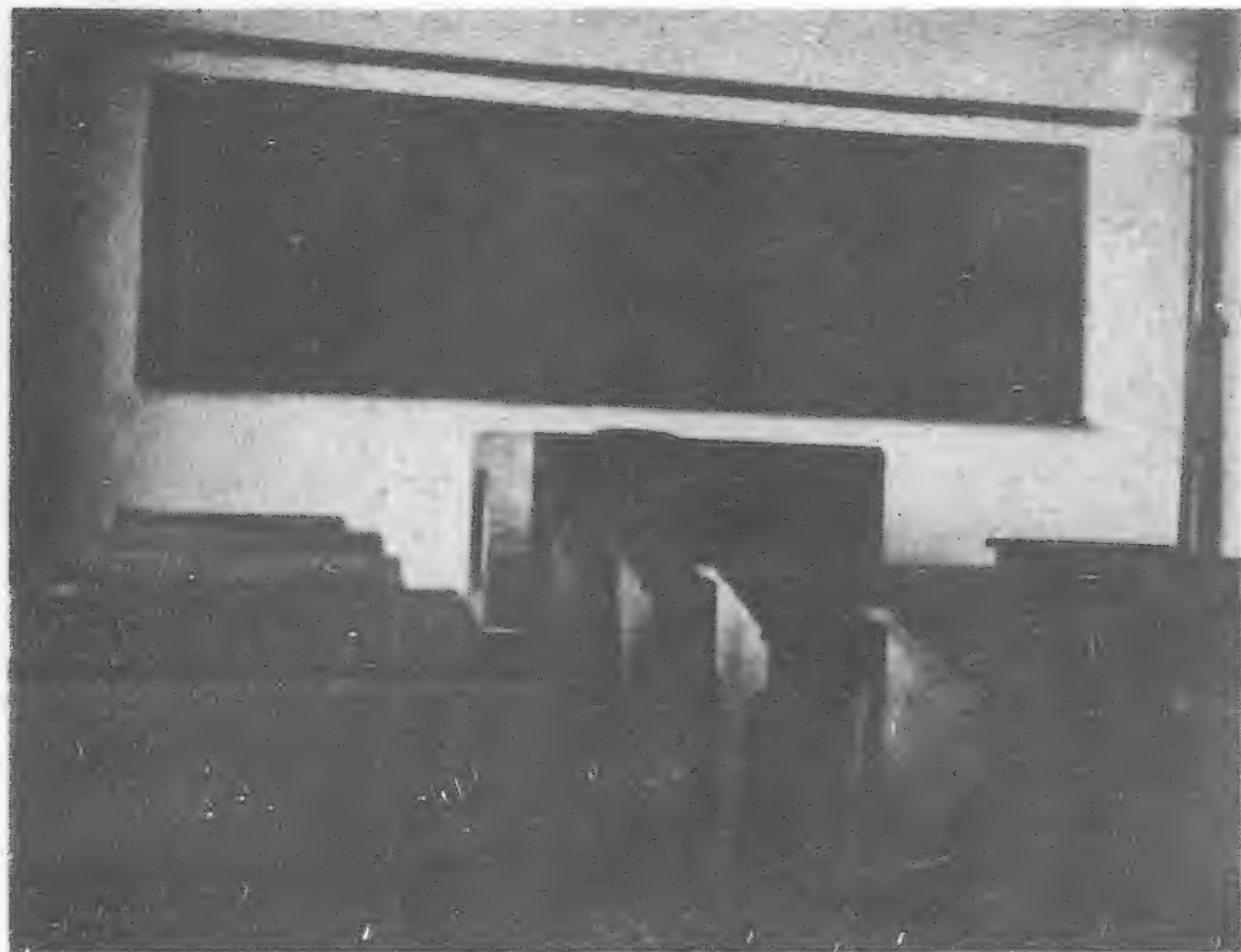
well fit for quick decisions, the new director laid the plan which was to be put into execution by his successor: he divided the Superior Course into three sections: Literature, Law, Medicine and Sciences.

In 1915, Rev. Fr. Yves Henry came to take charge of Aurora. He kept his office until 1922, handing it over to Rev. Fr. Scellier. However, for three more years, Fr. Henry remained at the University as its Chancellor.

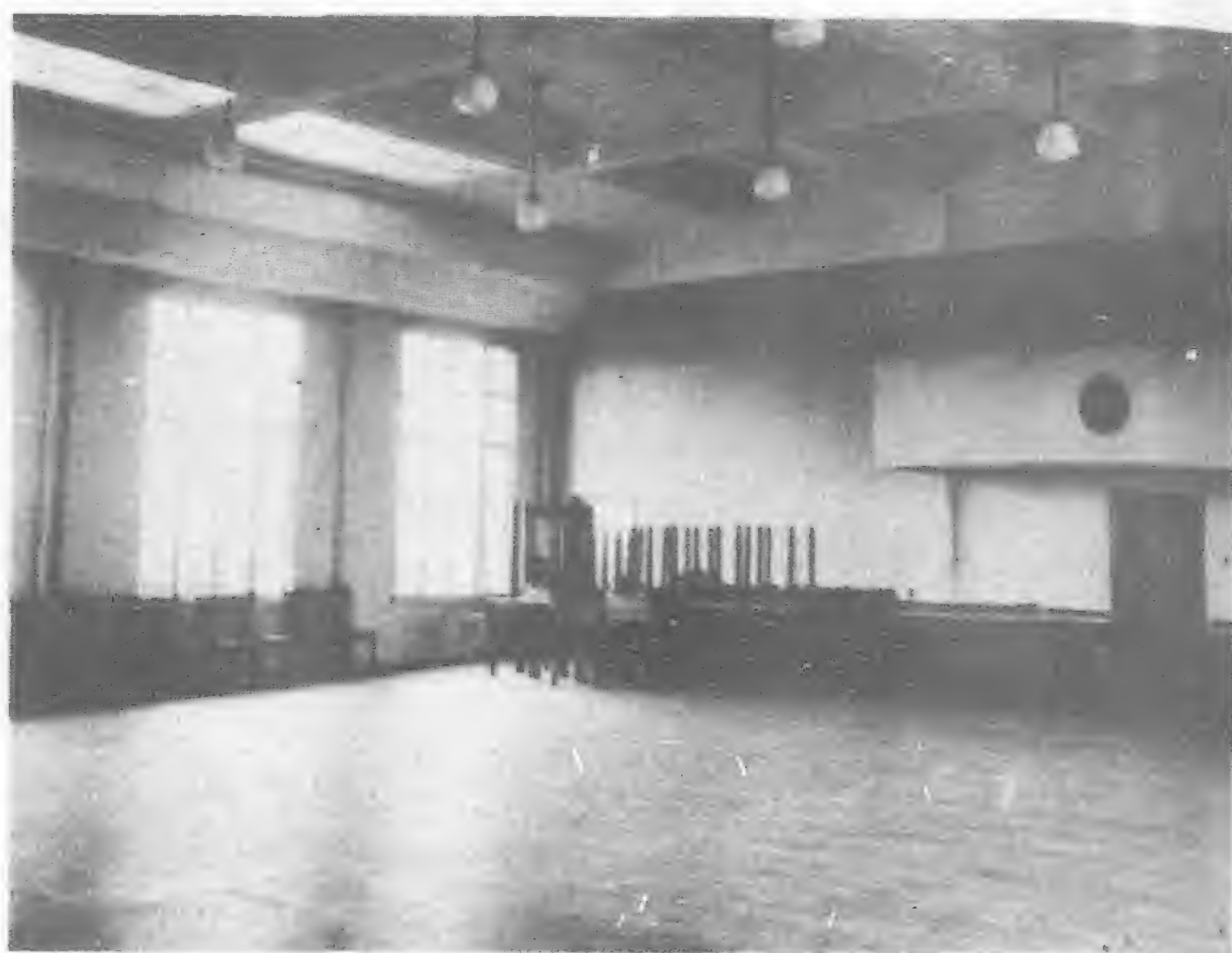
Illness compelled Fr. Scellier to leave the University and to return to France. He died there, May 26, 1927. Rev. Fr. Peter Lefebvre, Chancellor during the Rectorship of Fr. Scellier, was then designated to continue the direction of Aurora until July, 1932, at which date Rev. Fr. Germain succeeded him.



Eglise St. Pierre, the new church at the northern end of the campus finished a little more than a year ago



One of the class rooms of the new building



A corner of the assembly hall of the new building

In the course of this latter period constant progress was made. At the same time that the number of pupils increased, the necessity of new buildings increased. In 1928 the chemistry laboratories were enlarged and the Auditorium was constructed. The latter was completed just in time for the celebration of the 25th anniversary of the founding of the University.

In 1930 the Museum of Natural History (Heude Museum) was erected to house the truly unique collections which had been painstakingly gathered together over a period of 60 years by Fr. Heude and his successors.

Finally, on the first of October, 1932, the first stone was laid for the Church dedicated to St. Peter the Apostle, a vast and beautiful structure made necessary by the ever increasing number of Catholic students.

At the same time the course of studies in the different Faculties was made more precise. An attempt was even made in 1928 to organize and develop the Faculty of Literature (Arts and Letters) and to make it autonomous. This trial, however, did not succeed, due in part to the difficulty of recruiting a teaching staff, but the idea remains and will be resumed when circumstances permit.

Registration of the University

The principal event of these latter years was the registration of Aurora by the Government. Approved in 1904 by the Vice-Regent of Nanking and in 1912, on the morrow of the Revolution, by the young Republic, it was necessary to have the University recognized by the National Government installed in Nanking in 1927.

In September, 1931, the Board of Administration, composed of nine members, was accepted. The Rev. Fr. Rector, as permanent administrator, was named to represent the Board at the school, and Mr. Hu Wen-yao, alumnus of Aurora and Doctor of Science of Louvain, became Director of the University. After approbation was given, the course of studies and the regulations, an official inspection took place on November 7, 1932. The four delegates of the Ministry of Education remained two days at Aurora and visited the installation at their leisure and assisted at the classes. They manifested their satisfaction publicly and the official decrees of registration appeared in December, 1932.

Since that date still further developments have taken place. To the Preparatory Course (secondary course of the second degree) has been added a secondary course of the first degree, and this has been done at

the request of the alumni who are anxious to place their sons at Aurora from the very beginning of their studies.

On October 20, 1933, the Dental Faculty was opened and Doctor Le Goaer of the School of Stomatology of Paris began his courses.

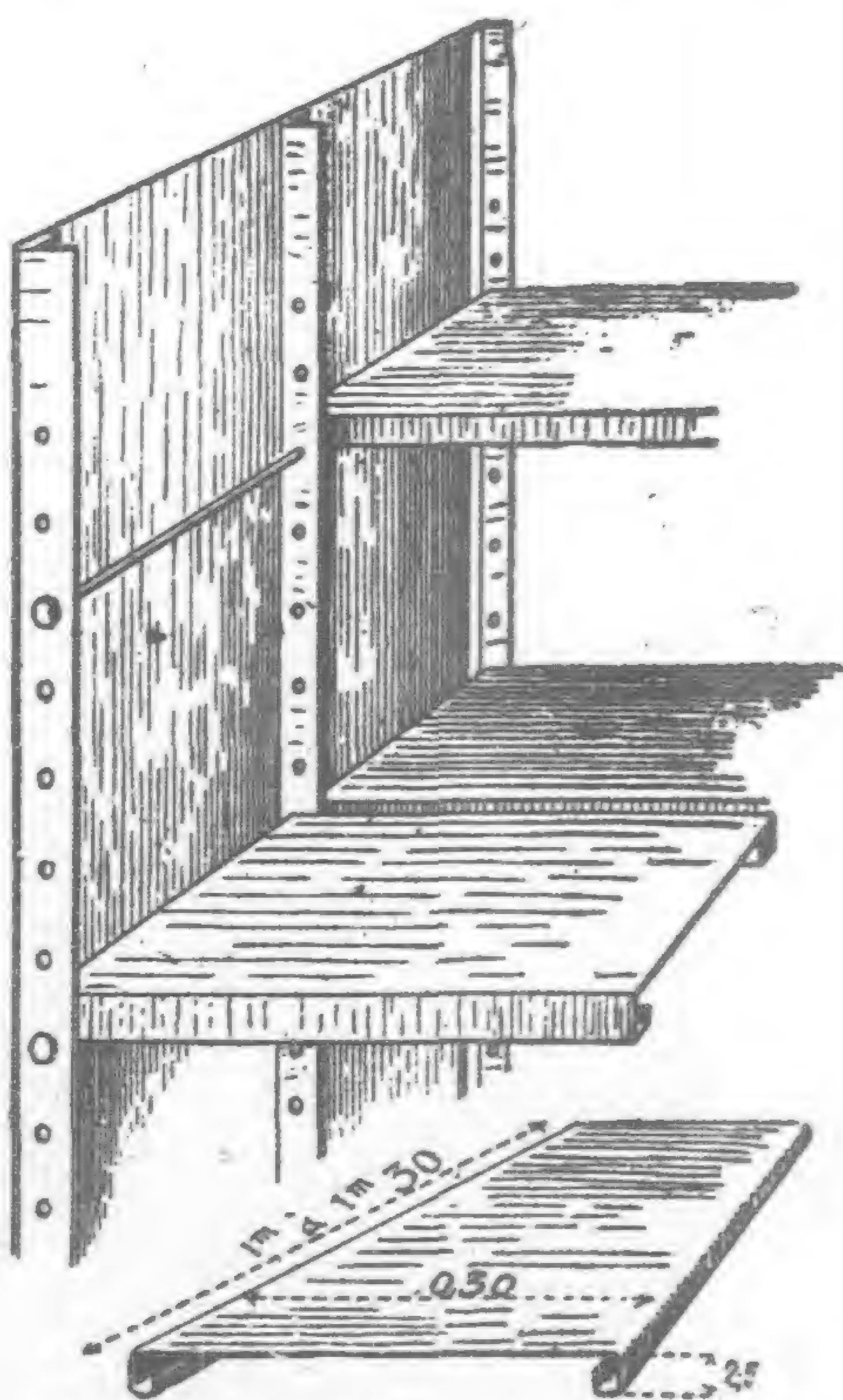
In the course of the thirty years of its history, Aurora has indeed had a slow but continual growth, thanks in the first place to a firm and persevering effort which has triumphed over every difficulty. Men have succeeded one another at the head of the school, many have died at the task, all have worked with perseverance and patience in the name of the Religious Order which they represented and in the name of the Church, each carrying his little stone to the mighty edifice whose plan had already been traced in 1903.

But it must be confessed that the founders and their successors would have been able to do but little, if they had not been assisted in every way, and if along their path they had not met with sympathy and material and moral support.

Aurora University is situated at Loukawei, at the southern extremity of the French Concession of Shanghai. From both sides of Avenue Dubail, it is in direct communication with the International Settlement and the Chinese city by means of tram-cars and bus lines. Bordered on the west by the large park which encloses St. Mary's Hospital, to the east by beautiful athletic fields, three minutes removed from the attractive public gardens of Koukaza, Aurora in the midst of the city enjoys the charms of the country.

The University property covers an area of 103 mows or about 17 acres. Its buildings form a rather imposing group and may be enumerated as follows:

- 1.—The Administration building and the fathers' residence.
- 2.—The Physics building, containing:
 - Lecture hall and office.
 - Laboratory of general physics.
 - Laboratory of electricity.
 - Laboratory of optics and acoustics.
 - Workshop.
- 3.—A building for technical electricity and mechanics, containing:
 - A room for electrical measurements.
 - A room for electrical machines.
 - A workshop for machine tools.
 - A room for thermic machines.
 - A room for experiments in the resistance of materials.



Drawing showing type of specially constructed steel shelving installed in the great library of the University in the new building



The interior of the library showing system of steel shelving. Each of the eight floors of shelves has the capacity to store 34,000 volumes



A main corridor on an upper floor of the new building looking east to west. Class rooms are on either side of this wide corridor

4.—A Chemistry building containing :

- Lecture hall and office.
- Three scientific research laboratories, namely, for general, industrial, and organic chemistry, respectively.
- Two storerooms for chemicals.
- Two rooms for scales and balances.
- Two dark-rooms.
- A mineralogy laboratory.

5.—A large building where temporarily the Law Faculty has its Lecture Halls. A good part of this building is also taken up by the Lecture Halls for the Faculty of Medicine as well as laboratories of Bacteriology, Physiology and the natural sciences and a large room for anatomical specimens.

6.—A building of anatomy, containing :

- Two large halls for dissection and for surgical medicine.
- A Lecture hall.
- A preparation chamber.

7.—A Museum of Zoology, Botany, Entomology and Chinese Antiquities, containing :

- Six large rooms for collections.
- Three laboratories.
- Three libraries.

8.—A large auditorium which seats 1,300 people.

9.—A large chapel for Catholic students.

10.—A dormitory for Catholic students.

11.—A dormitory for non-Catholic students. Five hundred boarders can be taken care of at Aurora.

12.—Two buildings for the "kao chung" and the "chu chung" or preparatory courses.

13.—Twenty-four shower-baths.

14.—Two restaurants where the students may, if they wish, take their meals.

The libraries, up to the present, have been divided among the different Faculties. They contain in all around 60,000 Chinese and foreign volumes.

A reading room puts 200 periodicals at the disposal of the students.

For sports, Aurora offers its students :

- 2 Football fields.
- 1 Volleyball court.
- 2 Handball courts.
- 2 Basketball courts.
- 5 Hard tennis courts.
- A field for track and gymnastics.

A shady garden allows the enjoyment of an agreeable freshness in the course of the hot summer months.

St. Anthony's dispensary (Hospice) and St. Mary's hospital may, in truth, be considered as annexes to the University. It is there that the students of medicine pass a great part of their day, either at the bedside of the sick or in the dispensary maintained by Aurora in these two hospitals.

Recognition by French Government

The Ministry of Public Instruction in France accepts the diplomas of the Preparatory Course of Aurora, or the Certificate of Secondary Studies, as equivalent to the French Baccalauréat. (Ordinance of November 30, 1918, completing the list of foreign diplomas, titles and certificates cited by the first articles of the ordinances of November 16, 1915). This gives to the young Aurorans who wish to pursue their studies in France a real advantage by granting them access to higher Course in the French Universities. The students graduated from the Faculties of Aurora may benefit in the French Universities of dispensations from class, through cumulative registrations. The request should be made in each particular case to the Ministry of Public Instruction.

Students graduated from the Faculty of Sciences (Section of Electricity) are admitted without examination to the "Ecole Supérieure d'Electricité" of Paris. At the end of each scholastic year, the Legation of France in China sends a delegate for each of the three Faculties. These delegates preside over the examining juries and give their approbation to the degrees of the Licentiates, the Doctors of Law, the Engineers and the Doctors of Medicine.

Board of Administration

A board of administration composed of nine members has as its duty the promoting of the well being of the University. It has been approved by a decree of the Ministry of Instruction. The Board of Administration is represented at Aurora by the Rev. Fr. Rector, Religious Superior. At present he is the Rev. Georges Germain, S.J. At the head of the University is a Director, assisted by a Chancellor and a Council. The Committee of Directors is composed of the following members :

Mr. Hu Wen-yao —Director of the University.

Rev. Fr. Gaultier —Chancellor.

Mr. Lan Siu-tchang—General Prefect.

Mr. Wang King-kan—Secretary.

Rev. Fr. Gerault —Treasurer.

(To be continued)



The office of the Chancellor in the new building, the Rev. Pere H. Gautier, S.J., Chancellor of Aurora, is seen here seated at his desk

Germany's Exchange of Goods with China

By W. MÜLLER, Berlin

CHINA's foreign-trade statistics show that between 1928 and 1934, her export trade declined by some eighty-three per cent, whereas imports decreased by about seventy-seven per cent. A more detailed survey is contained in the following table, which lists the total goods movements, in each case with the corresponding German share of exports and imports.

TABLE I

	1928	1929	1930	1931	1932	1933	1934	1935*
China's total exports								
mill. RM.	2,954	2,742	1,727	1,319	705	528	457	510
To Germany mill. RM.	68	61	45	37	43	18	16	26
per cent	2.3	2.2	2.6	2.8	6.1	3.4	3.6	5.1
	11.2	13.5	17.3	16.4	25.1	29	26.7	20
China's total imports								
mill. RM.	3,564	3,418	2,528	2,079	1,497	1,159	880	828
From Germany mill. RM.	165	180	133	124	102	93	80	91
per cent	4.6	5.3	5.3	5.8	6.8	8	9.1	11
China's total import balance mill. RM.	610	676	801	760	792	631	423	318
In trade with Germany mill. RM.	97	119	88	87	59	75	64	65
	-165	-191	-165	-92	-75	-60	-42	-11
China's machinery imports mill. RM.	63.8	99.5	99	75.8	40.7	33.4	46	90
From Germany mill. RM.	7.1	14.2	18.7	9.6	5.6	5.3	7.1	10.2
per cent	11.1	14.3	18.8	12.6	13.7	15.9	ca.15	ca.11
From England per cent	25.4	28.4	30.5	31.6	40.1	42.6	ca.44	
From U.S.A. per cent	27.5	19.9	15.4	12.0	16.1	16.1		
From Japan per cent	21.5	20.1	19.6	23.6	16.4	15.4		

The reasons for this development are to be sought in external as well as internal causes. During the world economic crisis, China's export products found but a limited sale abroad, and that at low prices. On the other hand, China was for years the prey of martial and revolutionary events, floods, and crop failures, which combined to cut down the utilization of her natural wealth and hindered alike the introduction of modern winning and manufacturing methods, the expansion of her road network, and the development of her industrialization. Accordingly, China was largely dependent upon the importation of many vital products such as grain, flour, sugar, textiles, ores, metals and the goods made therefrom, chemicals and pharmaceutical products, oils, fats, soap, wood, cellulose, paper, machinery and tools, although under normal conditions a considerable percentage of these goods could have been produced at home.

These were the reasons why the Chinese foreign-trade balance as far back as 1910 closed with considerable excess importation, which decreased only from 1933 on with the beginning settlement of economical conditions in China.

Germany's share in Chinese exportation rose during this period from 2.3 per cent to about five per cent, and her share in imports from 4.6 per cent to about 11 per cent. The latter fact is unquestionably fully appreciated in German economic circles, inasmuch as it would indicate recognition of the quality of German export products and to presage a further rise in the German share of supplies.

Nevertheless German business men interested in Chinese trade believe themselves to be entitled to a far larger sale of their goods in China, and in this connection point out that Chinese foreign export statistics give an incorrect picture of the important rôle played by Germany as a purchaser of Chinese exports.

This reasoning is based on the fact that German statistics indicate very considerably larger quantities exported from China into Germany than the corresponding Chinese notations do. To show the difference, the German figures of the import from China are in the accompanying table compared with the Chinese export figures. While, according to the Chinese statistics, Germany had an active balance, in 1928 and 1935, of 97 and 65 million RM, she actually had to get along on a *passive* balance of 165 and

11 million RM, respectively. This very considerable divergence is explained by the fact that Chinese statistics, like other and particularly overseas statistics generally, reckon the share of the various countries in the total export merely by the port of destination, without considering the transit traffic and the ultimate destination.

Since the German figures must be considered as unquestionably correct, there follows a share of Germany, in the purchase of Chinese goods, rising from 1928 to 1934 (the 1935 figures being based on non-official publications), not from 2.3 to about 3.6 per cent, but from 11 to 27 per cent.

Actually, therefore, Germany absorbs about one fourth of the total Chinese exports, and by her import balance aids in reducing China's passive trade balance. If this fact were brought home, not only to the official purchasing boards but also to Chinese tradesmen and consumers, it should surely serve in bringing about a substantially better sale of German goods in China.

Such an increase in sales would be particularly desirable to German machinery exporters. This section of German industry had succeeded, during the post-War years, in raising its share in Chinese machinery imports to about 25 per cent by 1930. From 1931 on, however, this figure steadily dropped, arriving at about 11 per cent in 1935, while at the same time England was able to improve her share by a corresponding amount.

From the German point of view, this is to be the more regretted as, due to China's beginning industrialization, which has been extensively aided by official bodies especially since the advent of ordered conditions, the import of machinery has been continually gaining in importance. While, of the total Chinese importation of goods between 1928 and 1933, but about three to four per cent came under the head of machinery, this share increased to about five per cent in 1934 and to about 11 per cent in 1935. It is the earnest and justified wish of the German machine industry to participate in this evident growth of purchases in larger measure than hitherto, and in accordance with its place in world trade.

In 1935, German machine exports to China consisted to 29 per cent of metal-working machinery, 16 per cent prime movers, 10 per cent locomotives, six per cent road-making, dressing, and ceramic machinery, five per cent textile machinery, pumps and compressors, and cranes and conveying plants, and to 24 per cent of machines of other kinds. In a comparison of the corresponding figures for 1929, a surprising fact is the very large decline in exports of prime movers, printing machines, flour-mill machinery, and sewing machines. While this decline is offset by a notable revival in metal-working machinery, locomotives, cranes, and conveying plants, this was not large enough to make good the losses in the first-named groups, so that there remains a total reduction in machinery exports to China of 30 per cent as against 1929.

* The 1935-figures are taken from unofficial reports and cannot therefore be regarded as definite. Figures in italics are taken from the official German export trade statistics.

Canadian Trade Mission

With the purpose of seeking to expand trade relations, a Canadian trade mission to the Orient is planning to leave Vancouver on January 19, 1937. The mission is under the auspices of the Canadian Chamber of Commerce, with the support of the Dominion Department of Trade and Commerce and the co-operation of the Canadian Manufacturers' Association.

The mission contemplates visiting Honolulu, Shanghai, Nanking, Hongkong, Canton, Saigon, Angkor, Bangkok, Singapore, Yokohama, Kobe and Nagasaki; possibly also Peiping, Mukden, Seoul and Tokyo.

The party will return to Canada, April 7, 1937.

Round table conferences are being arranged at the principal cities included in the itinerary.

Japanese Air Transport*

THE Imperial Aviation Society of Japan last year recommended to the Ministry of Communications a scheme for external air services which would involve the expenditure of Y.250,000,000 spread over a period of fifteen years. The scheme proposed:—(1) A service from Tokyo or Osaka to Vladivostok linking up with the Soviet Trans-Siberian lines. (2) A service to Manila by Formosa and the Japanese Mandated Islands linking up with Pan-American Airways' transpacific service. (3) A service to Batavia via Hongkong linking up with the K.L.M. Holland-Batavia services. (4) A service from Nemuro in Hokkaido to link up with Pacific-American Airways' Fairbanks-Nome Service and also to Petropavlovsk to link up with the Soviet air service.

Before this ambitious program can be put into effect the supply of suitable pilots and ground staff must be put in hand. Japan is not well supplied with training schools for civil pilots. Few of the fifteen unsubsidized training schools are capable of training pilots to the standard required for commercial passenger or mail services, so that one of the first developments in the scheme will be the reorganization of the schools for training both pilots and ground staff.

There is also the difficulty of building up an efficient ground organization to meet the requirements of the development program.

Under the late Mr. Takejiro Takonami the Ministry of Communications produced a ten-year plan, which was similar to that of the Imperial Aviation Society but was prepared from a ministerial rather than an aeronautical point of view. The Ministry asked the Japanese Treasury for Y.13,700,000 (about £1,370,000) for subsidies and ground organization to start with. Only Y.1,920,000 (£192,000) was allotted, about as much as in the previous year, but the entire plan has not therefore been postponed. The most urgent matter, an air line to Bangkok to connect Japan with the British, Netherlands and French services to Europe and to the valuable markets of the East Indies, has already been started as far as Formosa.

Both the Nippon Koko Yuso, the air operating company of Japan, and the Manchoukuo Koko Yuso in Manchoukuo, are extending their operations.

The machines of both these companies were used for transporting ammunition and supplies as well as evacuating casualties during the Japanese operations in Manchuria four years ago. Doubtless a main

consideration of the new development scheme is to establish radiating strategic airways.

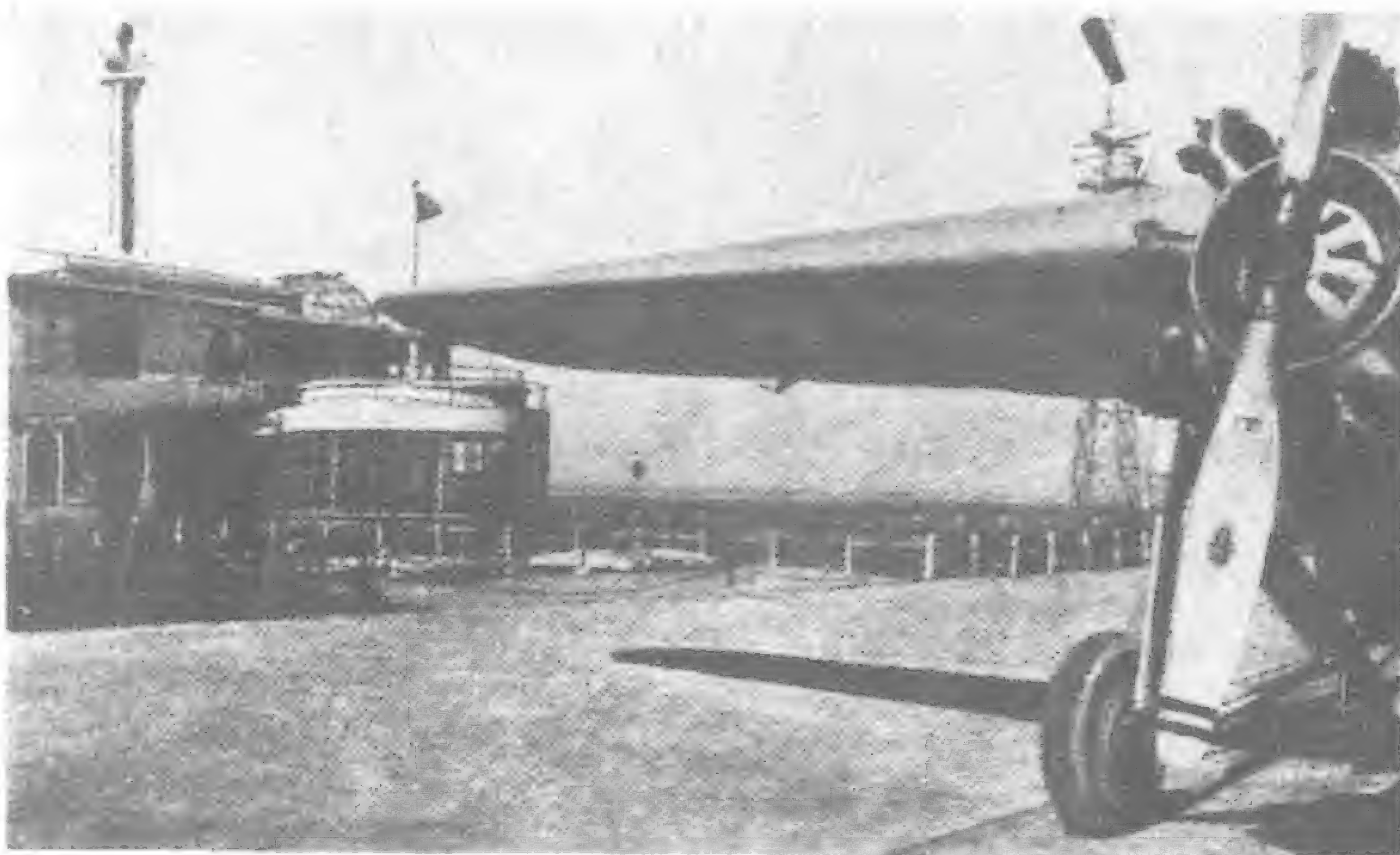
The Japanese papers recently stated, as if with the authority of the Ministry of Communications, that the Formosa—Bangkok extension will be by way of Hongkong and Hanoi, will start next year, and will need a subsidy of Y.240,000 (£24,000) in the first year, to be provided by the Japanese and the Formosan Governments.

The next lines to be opened will be Tokyo—Palao (about 2,500 miles, flown in a day and a half) and Tokyo—Sapporo (590 miles in six hours including stops).

Japanese air interests are meanwhile doing their best to meet the wishes of the Ministry of Communications by producing under licence in Japan not only motors, but airplanes of types used by up-to-date services in Europe and America. The Mitsubishi works are to build the Airspeed Envoy which has been chosen for the line to Manchoukuo and the Nakajima

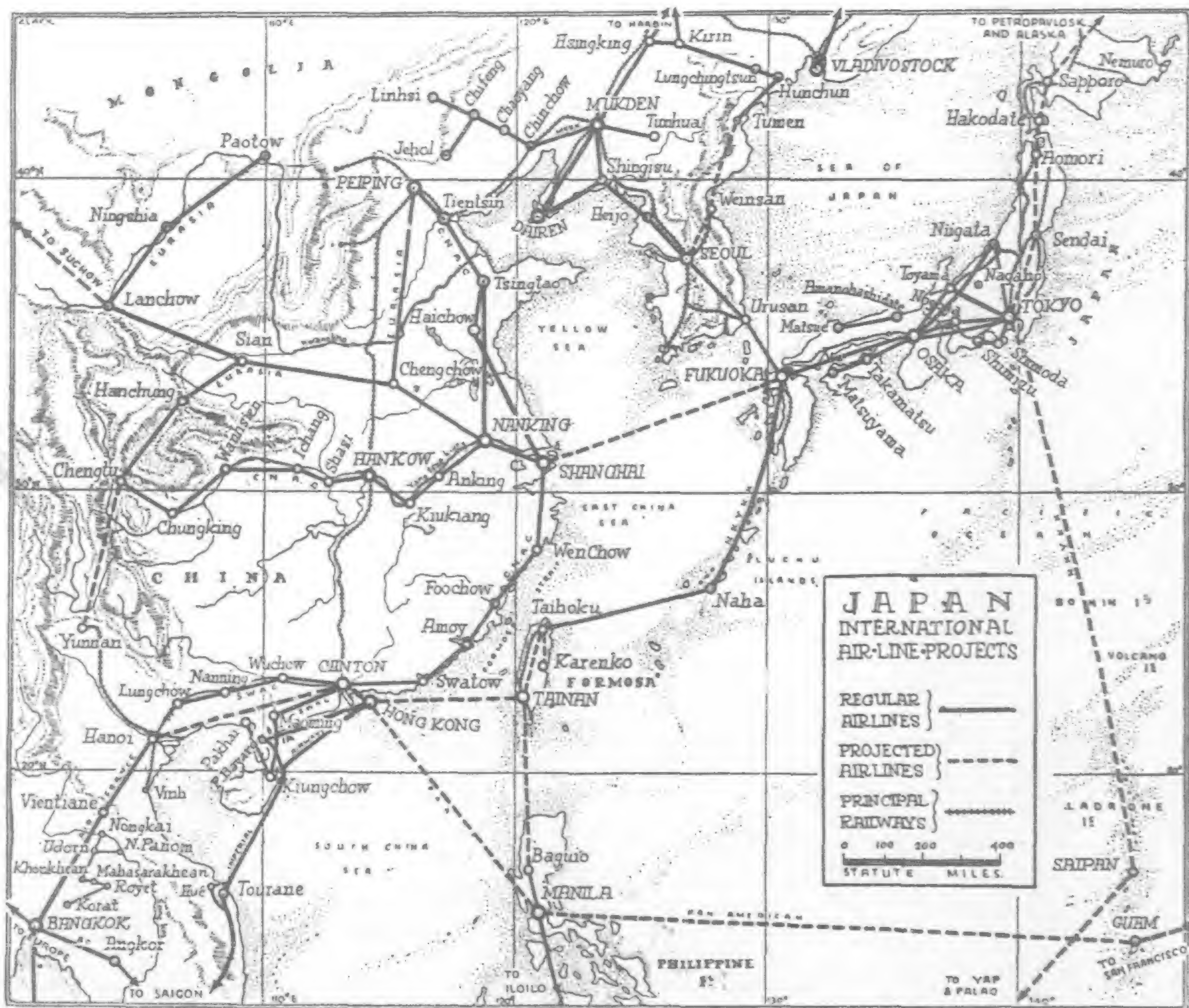
works are to make the Douglas D.C.2, which has been chosen for the line to Formosa.

The imported machines which the Japanese will copy are said to have given satisfaction in the tests. The Envoys (Lynx motors)



Tokyo—Main Building at Haneda Airport

*The Aeroplane.





Japanese Mails—One of the Nakajima DI mail planes of the Nippon Koku Yuso Kabushiki Kaisha

have been reported as working on the Urusan—Dairen section of the route to Manchoukuo and to have made a big time-saving over the Fokker Super Universals (Bristol Jupiter motors). The Envoys are intended also for the sea crossing between Urusan, at the South end of Korea, and Fukuoka, a distance of about 130 miles with the large island of Tsu-shima (40 miles long) about half-way across. Which is where Admiral Togo annihilated the Russian Navy.

The first trip on the new line to Formosa was done on October 8, 1935, by an eight-passenger Fokker F.7b/3m, and since then a weekly service each way has been maintained. Under the provisional timetable the machine left Fukuoka every Wednesday at 07.00 hours, called at Naha in the Lu-Chu Islands at 12.10, left there at 13.00 and got to Taihoku at 16.00. The Northbound service left Taihoku at 09.00 on Friday and stopped for the night at Naha at 15.50. It left at 07.00 on Saturday morning and got to Fukuoka at 13.20. The extra time Northward is necessary because of the monsoon wind, which from October to March also adds a day to the time taken by the regular steamship service.

When the Douglas machines have settled down on this route much better time-tables will be possible, including a one-day journey Northward. For the first year or so three trips weekly each way will be made with the Douglasses.

A Tokyo report says that the thrice-weekly service started on January 2, since when passengers have been carried as well as freight and mail.

The Department of Overseas Trade stated recently that the Nippon Koku Yuso Kabushiki Kaisha (the Japan Air Transport Co.) is reported to be getting about ¥360,000 (nearly £36,000) in subsidy for this route for the first year, half from the Central Government and half from the Formosan Government.

The trouble of prohibited areas seems to have hampered the company as much on this overseas route as on some of the internal Japanese routes. Apparently no foreign airman has yet been allowed to follow the Lu-Chu route at all, and even the Government's chosen company has to fly almost direct from Fukuoka to Naha, keeping nearly 50 miles to the West of the many islands at the North end of the group. From Naha Southward the line of islands is followed and the aeroplanes approach Taihoku from the South-East, crossing the coast of Formosa near Giran.

Winter mists around the Northern end of the island have no doubt given the pilots plenty of trouble when approaching the aerodrome (which is said to be surrounded by hills up to 3,700-ft.) and trying to avoid the prohibited area around the fortifications of Keeling. In the Summer storms are common.

The Department of Overseas Trade has reported that internal services in Formosa are contemplated, notably a line to Karenko, on the East coast, and one to Tainan or Takao on the South-West coast. This no doubt would be the route for a service onward to Hongkong, Hanoi and Bangkok.

Half a dozen smaller companies also run air services in Japan, and there has lately been talk of an amalgamation. Tokyo reported recently that certain internal lines are to be started or taken over from private interests in 1937, so presumably the N.K.Y.K.K.

will get something like a monopoly of home and overseas routes. Japanese registrations at January 1, 1936, showed that this company then had 33 aeroplanes, including 13 Fokker Super Universals, 7 Fokker F7bs, and six Nakajima Pls. The Asahi company (connected with the *Asahi* newspaper) had 13 machines (mostly small and including a couple of Autogiros). The total of air-transport aeroplanes in Japan was then sixty-three.



Main hall of the building at the Haneda Airport, Tokyo

Aviation Progress in the Far East

AVIATION history in the Far East is unfolding rapidly, for following the linking of Hongkong with Penang,* and consequently with the far-flung system of the Imperial Airways, the announcement is made of an agreement between Pan-American Airways and the Hongkong authorities under the terms of which Hongkong will become the terminus in Asia for the transpacific air service operated by the American company, whose terminus through recent months, since the transpacific route was opened, has been at Manila.

By reason of these new arrangements and the opening of transatlantic air lines Hongkong and Shanghai virtually will become way stations on round-the-world air routes and the importance of both cities as great world ports will be greatly enhanced. When air routes from Japan to Shanghai and to other points in China are brought into operation the air-minded traveler in even remote parts of Asia will have at his disposal a network of connecting air lines that penetrate into every part of the civilized world. This will have an immediate effect of greatly

speeding up air mails from the Far East to Europe, to the Americas, to Australia and to Africa.

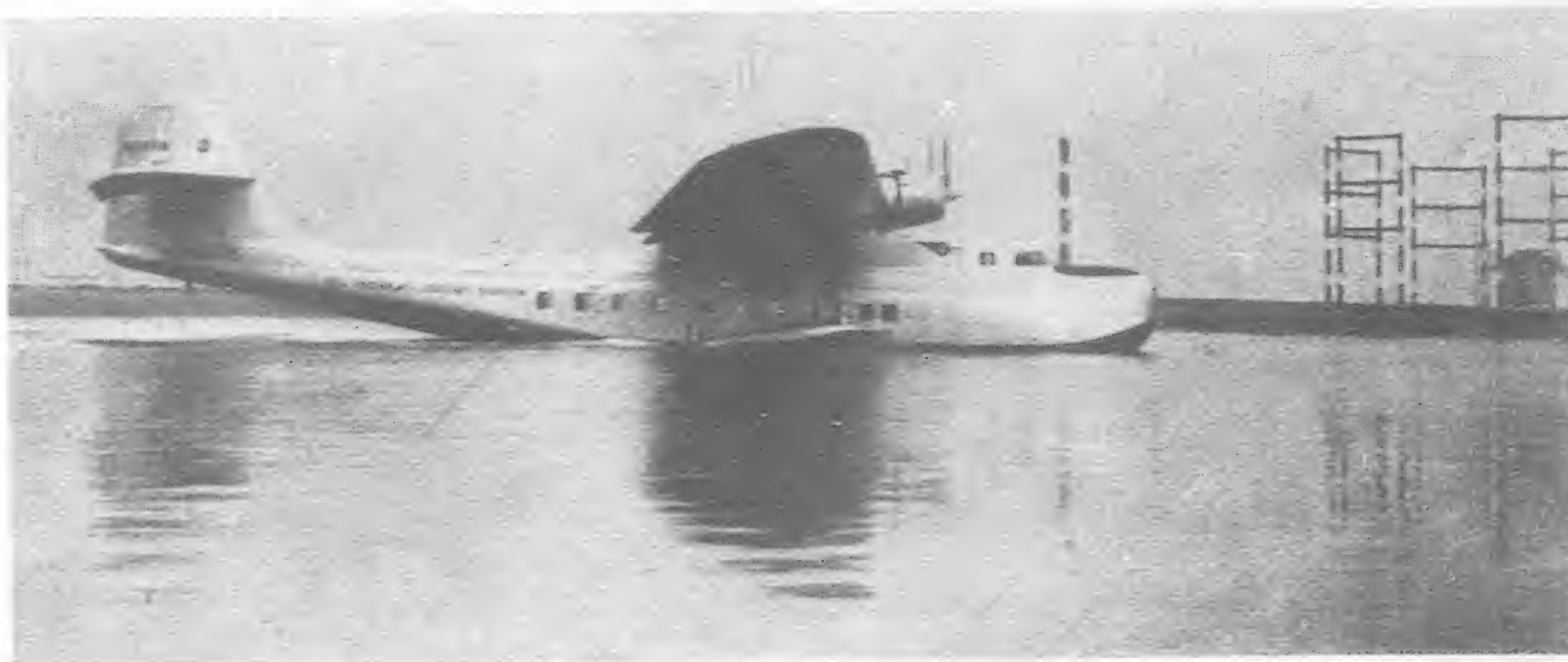
It is to be noted in connection with the opening of the Penang-Hongkong line of the Imperial Airways that this will give connection with the Royal Dutch Air lines and brings into operation a schedule by which the traveler can go from Hongkong to Amsterdam in seven days.

The importance of the linking of the American Pacific Coast with Hongkong and with Asia is set forth clearly in an editorial expression in the *North-China Daily News* of Shanghai, leading British newspaper in the Far East.

The agreement between Pan-American Airways and the Hongkong authorities whereby Hongkong is to

be used as the terminus for the transpacific air service operated by the American company, says this editorial is of utmost importance to present-day air transport. Not only does Hongkong become an airport of importance rivalling its position as a seaport, but the

* See *Far Eastern Review*, June, 1936



The China Clipper beneath the guarding towers of the Radio Station on Midway Island



The China Clipper of Pan-American Airways winging its way over the Pacific



The China Clipper of Pan-American Airways flying over the Golden Gate of San Francisco Bay

agreement completes the missing link in the international system of airways which makes a complete encircling of the world possible by ordinary air routes. This, added to the report that the China National Aviation Corporation which is connected with Pan-American Airways, will also use the Colony as a base, includes China in this international scheme of air communications and the advantages which should accrue make this development historic. Pan-American Airways have been maintaining a regular service across the Pacific for several months. It has been of an experimental nature, carrying only mail, but passengers will shortly be accepted and the short trip between Manila and Hongkong should prove of little difficulty for the giant Clipper ships which have been crossing the Pacific with express-train regularity and efficiency. Hongkong possesses admirable facilities for its new position as an airport.

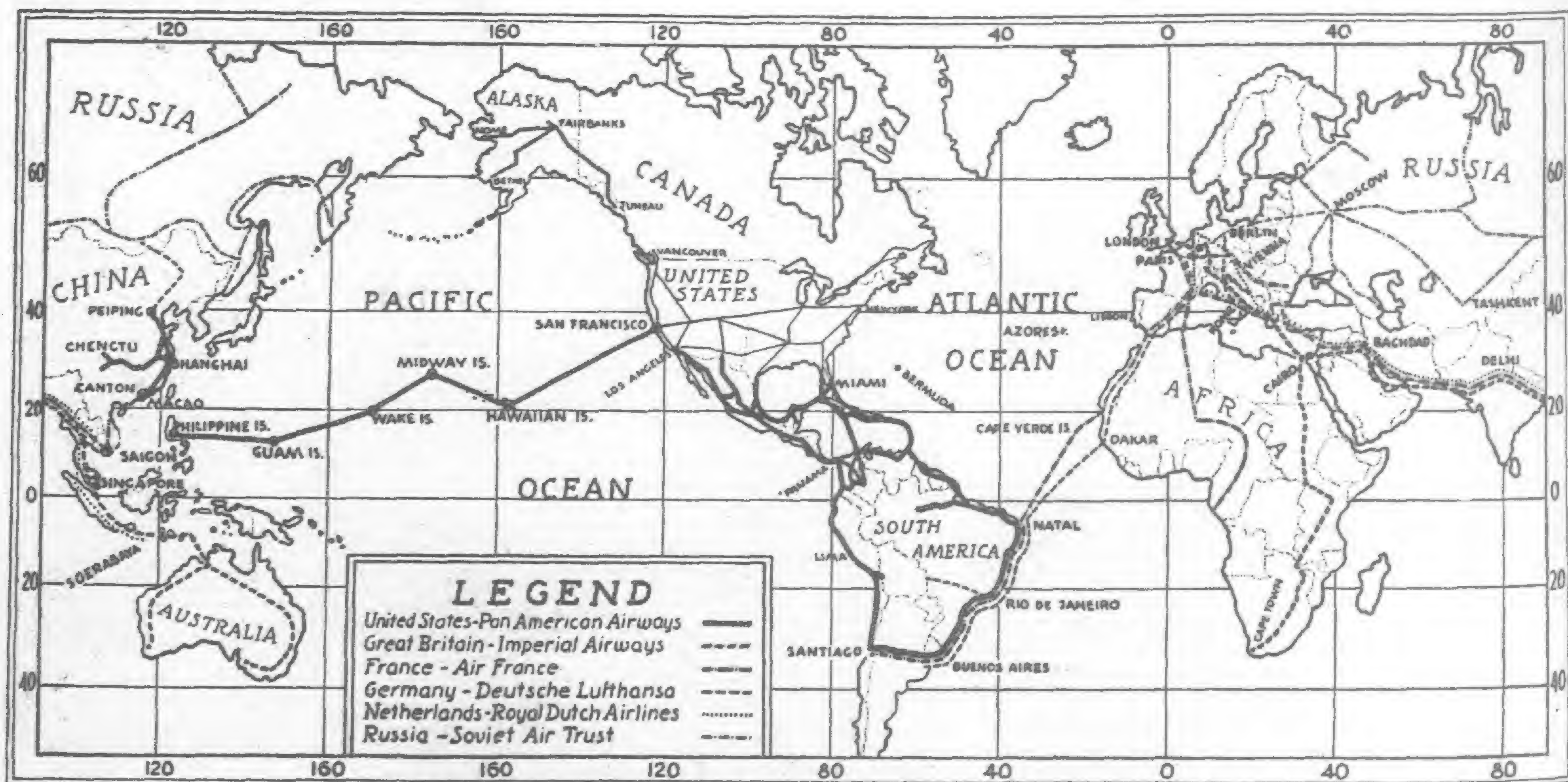
At Kaitak, already the terminus of Imperial Airways which maintains its weekly service from Penang, there is a well-equipped aerodrome for receiving and dispatching both land and sea machines. The recent addition of a new hangar and slipways which are shelter against typhoons increase the facilities and constitutes a factor of inestimable value for a company operating a service over so lengthy an ocean stretch.

Implementing of the agreement is to be expected in the near future, although negotiations have been long and tardy and at one

stage envisioned establishment of a base for the American Clippers at Macao. Hongkong's advantages, however, overshadowed any possibility of a base at the Portuguese colony, and a new era of international air co-operation, with the United States and Great Britain playing the principal parts, has been initiated.

The arrival of the first Clipper at Hongkong will mean that an air trip around the world, is as matter-of-fact as a steamer voyage. Starting from London, the traveler may board an Imperial Airways machine at Croydon and fly to Hongkong, where he may step on board a Clipper, and travel via Manila and the string of Pacific bases to San Francisco, where any of the trans-American air lines will take him to New York, and the German dirigible Hindenburg will complete the world tour.

These facilities will be extended shortly when the joint Imperial Airways-Pan America service across the Atlantic, via Newfoundland and Ireland, or Bermuda, will be commenced using a new type of flying boat possessing the comfort and luxuries of an ocean liner. Imperial Airways have already completed the second of the fleet of 29 giant boats destined for the Atlantic and other services while the American company already has its ships in service over the extensive mileage it covers. There has been considerable criticism that British and American air service operators, content with the progress already achieved in fields nearer home, had not realized the tremendous developments ahead and had not made



adequate arrangements to permit full exploitation. Hongkong's inclusion in the world aerial chain should be proof against this.

To Shanghai, of course, interest lies in another direction. Air travel in China is growing increasingly popular and a few people fly home from Hongkong or Singapore. To business people the principal question concerns air mail. Hitherto, the air mail between China and Europe has been very uncertain, although the possibilities of rapid transmission have been frequently demonstrated on the occasions when the service has operated under favorable circumstances.

Air France is working efficiently connecting with the C.N.A.C. at Hanoi and carrying mail posted at Shanghai. Although Imperial Airways lands at Hongkong air mail cannot be posted at Shanghai for transmission by that route.



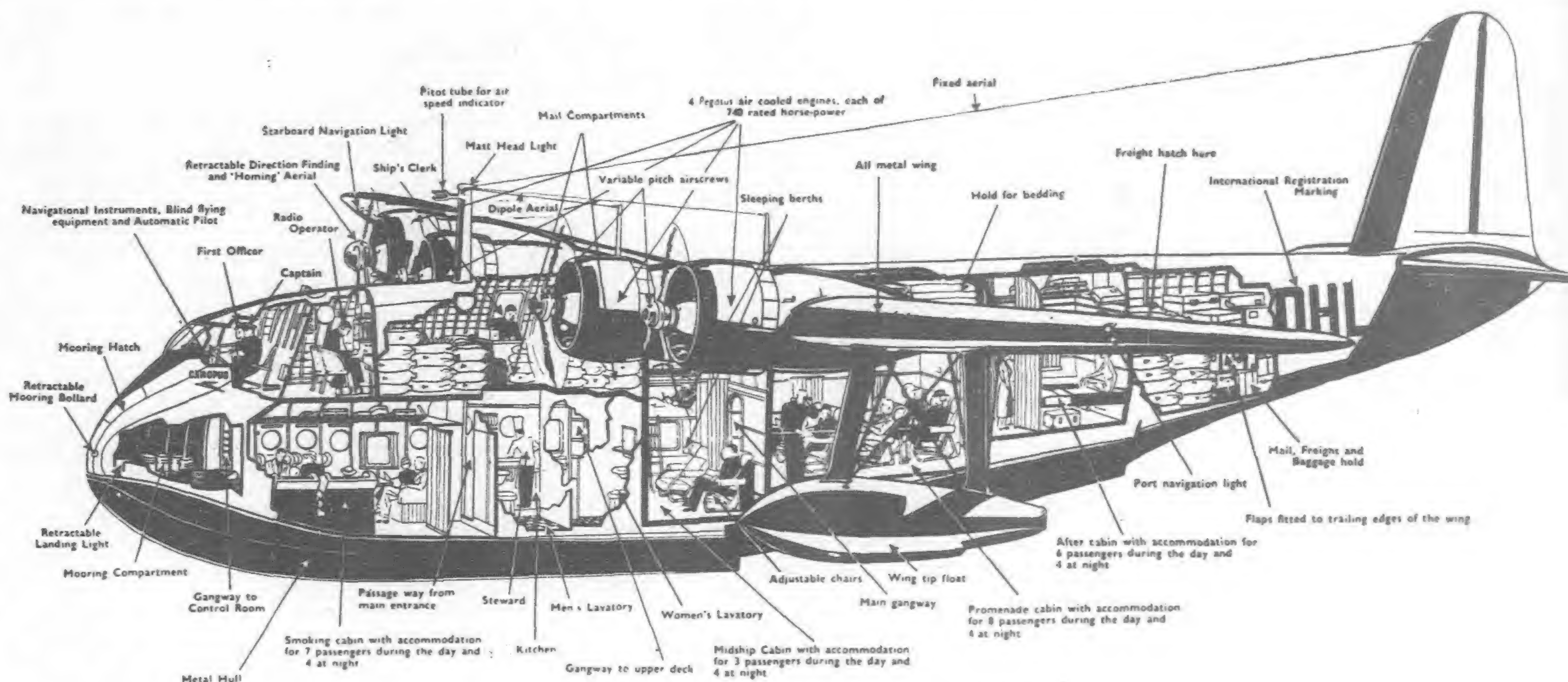
"C.N.A.C." Photo

Another picture of the Douglas "Dolphin" of the China National Aviation Lines which covers the route between Shanghai and South China



"C.N.A.C." Photo

The "Dolphin" of the China National Aviation Lines. This is the airplane that links Shanghai and China with the Imperial Airways and the Pan-American Airways at Hongkong. In this picture the "Dolphin" is seen flying over Soochow Creek in Shanghai. The large central structure is the newly erected Broadway Mansions and across the street from it is Shanghai's Historic Astor House. The Garden Bridge is at the right



THE EMPIRE FLYING-BOAT

28 ARE NOW BEING BUILT FOR IMPERIAL AIRWAYS

Length, 88ft. ; Height from water line, 24ft. ; Speed, 200 m.p.h. (approx.) ; Span, 114ft. ; Weight fully loaded, nearly 18 tons ; Crew, 5 ; Accommodation, 24 passengers on day stages and 16 on night journeys

As the C.N.A.C. is now to use Hongkong as a base there is no reason why air mail for that route should not be accepted in Shanghai. It only remains for the Ministry of Communications and the Hongkong authorities to make the necessary arrangements to enable the transmission of mails via the Imperial Airways route if the dispatcher so desires. By Hongkong or Hanoi the time to Europe is the same, namely 11 days, and it is hoped that Shanghai will soon be enabled to enjoy the benefits of this new development which is destined to have such a great influence on the future of air communications.

* * *

China's Place in Aviation

Supplementary to the foregoing, an interesting sidelight is thrown upon the position into which China is falling in the march of aviation progress, in an editorial in the *Shanghai Evening Post and Mercury*, the leading American newspaper in China.

Hongkong's recently announced decision to allow both Pan-American and China National Aviation Corporation airplanes to land at the Crown Colony is welcome from the standpoint of public convenience, says this writer, but it creates a curious situation. In effect it means that China's chief airport will be out of China. This we regard as undesirable from China's own point of view, however much rejoicing may be recorded in press dispatches from Canton and elsewhere.

By adherence to an official attitude that no foreign airplanes should be allowed to enter Chinese territory on regular commercial schedule—ironically enough, military airplanes of a foreign nation have regular and unquestioned access to considerable areas of China!—the Chinese have deliberately

thrown the center of commercial aviation out of their own hands and into those of a Power certainly friendly to China, and desirous of collaborating with China for mutual benefit, but nevertheless not China herself.

No one can blame the British for taking advantage of the opportunity China has virtually thrust upon Hongkong. On the contrary, the officials in London and Hongkong are to be congratulated and commended for their hospitable attitude which will materially benefit both themselves and China. This does not obscure the fact that China has elected herself to a back seat in the aviation picture, an error of judgment which will ultimately be regretted.

Hongkong is to become a junction point where American airplanes from San Francisco, British airplanes connecting with London, and Chinese airplanes to Shanghai and other China cities will meet for interchange of passengers, mail and cargo. There will be no other comparable air base in the Far East and few in the world.

Imperial Airways already flies into Hongkong from Singapore. Pan-American is flying regular schedules to Manila which may readily be extended to Hongkong (arrangements had been made for landing at Macao but this was obviously merely insurance, to be used as a last resort). C.N.A.C. will actually find it more convenient to continue its present Shanghai to Canton seaplane route

along the coast from Swatow to Hongkong and on to Canton in place of the slightly hazardous passage by land from Swatow to Canton which has hitherto been the necessary rule.

Hongkong, as we have indicated, is the great gainer by all this. Previously isolated save for steamship connections, the Crown Colony suddenly finds itself about to become an integral and vital part of three



An air liner of the Imperial Airways, one of a squadron pictured at Singapore while on a cruise to China

great airway links giving direct airplane connection with all parts of China, with the Straits Settlement, Australia, India and Europe, and with the Philippines, Hawaii and the United States.

Some general benefit will accrue to the Crown Colony by the fact that terminal facilities will be built there for two of the international airlines.

As the years pass, the benefit of this decision will become increasingly apparent at Hongkong. Correspondingly we forecast an increasing tendency on the part of China to regret that Canton was denied the privilege of assuming the rôle of a leading world air center. Eventually China will see the light and make belated arrangements for commercial airplane contact with other countries—certainly including, to face a plain and in this connection not unpleasant fact, Japan.

Transatlantic Air Service

Recently the Under-Secretary of State for Air (The Right Hon. Sir Philip A. G. D. Sassoon, Bart., G.B.E., C.M.G., M.P.) made the following official statement in the House of Commons with respect to the Transatlantic Air Service.

As has already been announced, discussions took place in Ottawa in November last between representatives of the United Kingdom, Canada, the Irish Free State, and Newfoundland regarding the establishment of an air service across the North Atlantic. Arrangements were finally agreed upon subject to the approval of the Governments concerned, which has now been given, to enable survey flights to be undertaken and an experimental air mail to be established as soon as possible; to be followed eventually by a mail and passenger service on a minimum schedule of two flights a week in each direction.

Discussions also took place immediately after the conference in Ottawa with representatives of the United States Government in Washington with a view to assuring the fullest measure of understanding and co-operation with the United States in the development of transatlantic flying. As a result understandings were reached, based upon the principle of full reciprocity, which it is hoped will bring about as soon as practicable the establishment of a transatlantic air service connecting the countries concerned.

The main details of the arrangements agreed between the respective Governments are as follows:—

A joint operating company which will be responsible for carrying on the services will be incorporated at the instance of three companies, of which one will be nominated for that purpose by the Government of the United Kingdom, one by the Irish Free State Government, and one by the Canadian Government. The company nominated by the United Kingdom Government will be Imperial Airways Limited. The board of directors of the joint company will be nine in number, of whom three, including the chairman and managing director, will be nominated by the United Kingdom Company, three by the Canadian Company, and three by the Irish Free State Company. The capital of the joint company will be subscribed and held as to 51 per cent by the United Kingdom Company, 24½ per cent by the Canadian Company, and 24½ per cent by the Irish Free State Company.

Landing Facilities

In return for landing facilities to be granted to the joint company by the United States Government, Pan-American Airways will be granted landing facilities by the Governments of the United Kingdom, Canada, the Irish Free State, and Newfoundland; and that company will participate on a basis of reciprocity with the joint company in the operation of the services.

In the operation of the services all practical preference will be given to the direct route from this country via the Irish Free State, Newfoundland, and Canada, but it may be necessary during an initial period to operate the services via Bermuda during the winter months.

Experimental long-distance flights and other necessary investigations will be carried out in the near future. The incorporation of the joint company will involve some delay, and it has been arranged that experimental flights and investigations will be conducted by Imperial Airways Limited. The results of the experimental flights and investigations will be placed at the disposal of the joint company when it is established. It is understood that Pan-American Airways will also be conducting experimental flights.

The control of commercial, technical, and operating matters will be secured to Imperial Airways, Limited, through its stock-

holding and through the medium of the articles of association of the joint company, subject to the superior jurisdiction of the board of directors in questions of major policy.

During the experimental stage, flying operations will be financed by the Government of the United Kingdom. When the joint company assumes responsibility for flying operations it will receive an annual subsidy from the several Governments on an agreed basis.

Of the total annual subsidy required, Canada will contribute 20 per cent, subject to the maximum of £75,000; the Irish Free State, 5 per cent, subject to a maximum of £12,000; and Newfoundland a sum to be agreed between that Government and the United Kingdom Government; the remainder will be made up by the United Kingdom Government. In consideration of their contribution the Irish Free State Government will be entitled to participate in the Empire Air Mail scheme, if and when they so desire, without payment of further subsidy, but only of the postal payment.

Ground Organization

Each of the four Governments concerned has undertaken to arrange for the provision of the necessary airport, radio, and meteorological facilities for the transatlantic service. In connection with the general transfer of meteorological services to a new organization being developed in the Irish Free State the United Kingdom Government will make an annual contribution of £6,000 to the Irish Free State Government on the basis of services rendered.

Each of the four Governments concerned has also undertaken to grant the necessary landing and transit rights within its own territory to the joint company and to Pan-American Airways. It is contemplated that unless otherwise determined by the consent of the four Governments such rights will be exclusive in respect of transatlantic air services for a period of 15 years; thereafter the question of exclusivity and the question of granting further financial assistance to the joint company will be reviewed.

An inter-Governmental committee on transatlantic air services will be established, consisting of four members appointed respectively by the Governments of the United Kingdom, Canada, the Irish Free State, and Newfoundland, to which will be referred for approval decisions of proposals of the joint company relating to transatlantic air services which may affect national policy or the relations of the Governments concerned *inter se* or with other Governments. All decisions of the inter-Governmental committee will be reached by unanimous vote.

Huge Conservancy Projects Completed

Three stupendous conservancy and flood-prevention projects, one along the Yellow River in Honan and the other two along the Yungting River in Hopei, are nearing completion, according to information from local Conservancy authorities.

Costing a total outlay of \$800,000, the three projects were expected to be formally taken over by the National Economic Council recently.

The first of the three engineering works is in the vicinity of Lanfeng to the east of Kaifeng, Honan, where the Yellow River overflowed, broke a number of dikes and changed its course further northward two years ago.

The building of a new embankment there is to prevent the waterway from re-entering the deserted course, a danger ever present owing to the accumulation of silt on the river bed.

Plans for the construction of the new embankment at Lanfeng were reached last year at the conference between representatives of the N.E.C. and of the Honan, Hopei and Shantung provincial authorities.

Built by two stages, the embankment was recently completed with a total cost of \$130,000, borne equally by the Central and Honan and Shantung authorities. This completed project was taken over by the N.E.C. recently.

The other two projects are concerned with the Yungting River in Hopei, the first of which consists in restricting the course of the river and repairing and strengthening the dykes along it. This job has been completed at the cost of \$275,000.

The second project on the Yungting river is designed to prevent the change of its course and to control silt accumulation, including the dredging of the middle stream of the river and the construction to a higher level of its southern embankment.

Costing a total of \$426,000, this project was completed recently and was later taken over by the National Economic Council.

The Electricity Supply of the Federated Malay States

Record of Progress and Expansion is Reviewed in Department Report for 1935

By W. J. WILLIAMS, M.I.E.E., M.I.MECH.E., M.I.STRUCT.E., Advisor on Electricity, Malay States

THE supply of electricity in the Federated Malay States for public purposes may be said to have commenced in 1901 when a hydro-electric scheme was considered to supply electric light for the Federal capital.

The British Resident of Selangor, in his annual report for 1901, stated that provision had been made in the annual estimates for generating plant to supply power for 60 arc lamps in the more important parts of the town, and 275 incandescent lamps, the number of which would be increased when necessary to 375. It was also stated that there would be sufficient power to supply 7,000 lamps of eight-candle power to private houses.

A hydro-electric generating station was accordingly erected at Ulu Gombak and turbine sets of 300 kw. each were installed. Three phase alternating current was transmitted to Kuala Lumpur by overhead mains at 5,500-volts, and converted to direct current for the town supply. In 1905 it was decided to provide auxiliary steam plant in case of accident or prolonged drought which would affect the power from the hydro-electric station and a 200 kw. direct current steam driven machine was installed at Gombak Lane, Kuala Lumpur. The addition of a 75 kilowatt battery two years later was deemed highly necessary to safeguard the supply and to assist the plant over periods of peak load.

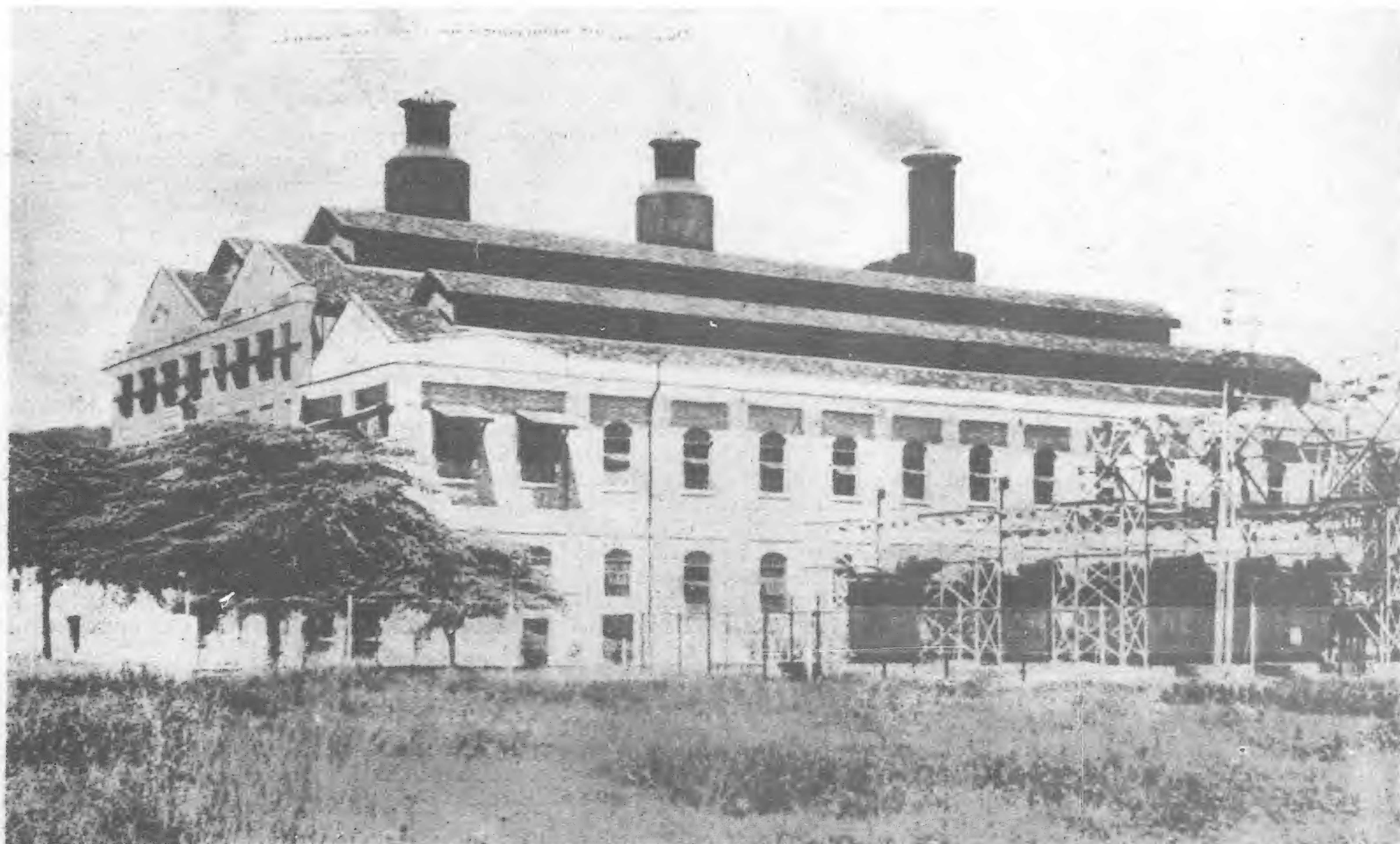
The demand for electricity continued to increase steadily during subsequent years so that by 1926 the effective capacity of the generating system was 2,500 kw. and consisted of a collection of small uneconomical machines using water, steam or oil for motive power. The chief electrical engineer at that time had been greatly handicapped because no definite scheme of extensions could be formulated on account of lack of policy with regard to future procedure.

One of the main disadvantages of the Gombak Lane power station was its close proximity to the Gombak River, on low ground which caused many anxious periods to the engineers when the river was in flood. During 1917 the battery was ruined by water which covered it to a depth of 7½ inches. In 1926 the power station was submerged to the extent of several feet, and generators were kept suspended on cranes until the water subsided.

The construction of the Bungsar steam power station was started in 1926 and 9,000 kw. of plant was installed. On January 1, 1927, the Electrical Department, which had previously been under the Public Works Department, was created an independent Federal department. On July 5, 1927, the Bungsar power station was put into commission on commercial load and the old power stations at Ulu Gombak and Gombak Lane were closed down.

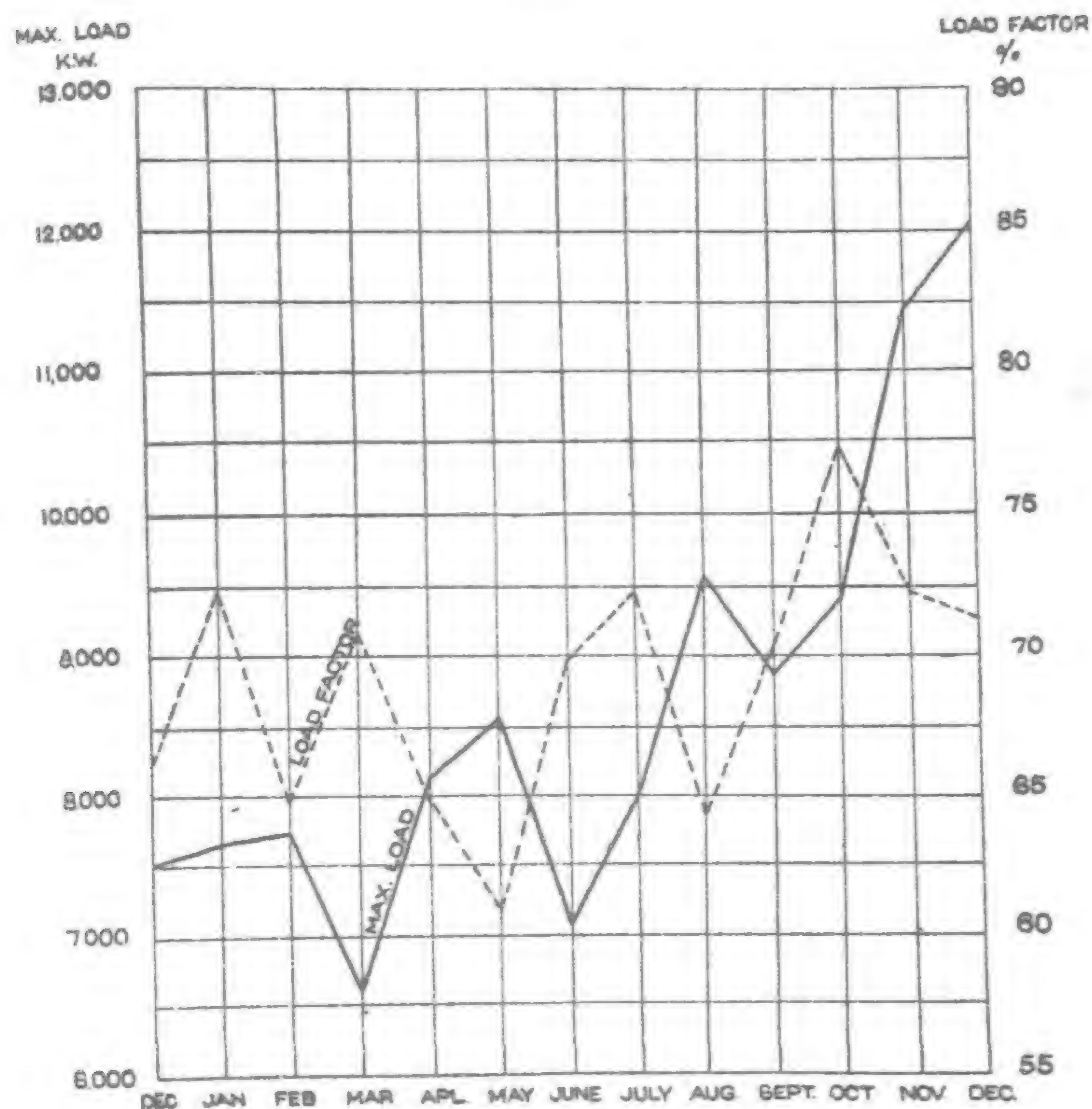
Consequent upon the opening of the new power station at Bungsar rapid development in the generation and supply of electricity took place so that by 1930 the original plant of 9,000 kilowatts had to be supplemented by an additional 10,000 kilowatts. In April, 1933, the two hydro-electric stations at Ulu Langat belonging to the Sungei Besi Mines were taken over by the Government and operated in parallel with Bungsar power station, which increased the capacity of the Kuala Lumpur and district generating plant to its present capacity, viz., 21,360 kilowatts. This plant to-day supplies the equivalent of some fifty million lamps of eight-candle power in contrast to the 7,000 lamps forecasted in paragraph two of this report.

During 1926 the total units sold to consumers from Government supplies amounted to 3,200,000 whereas in 1935 the units sold have increased to 46,038,830 or an increase of more than 1,338

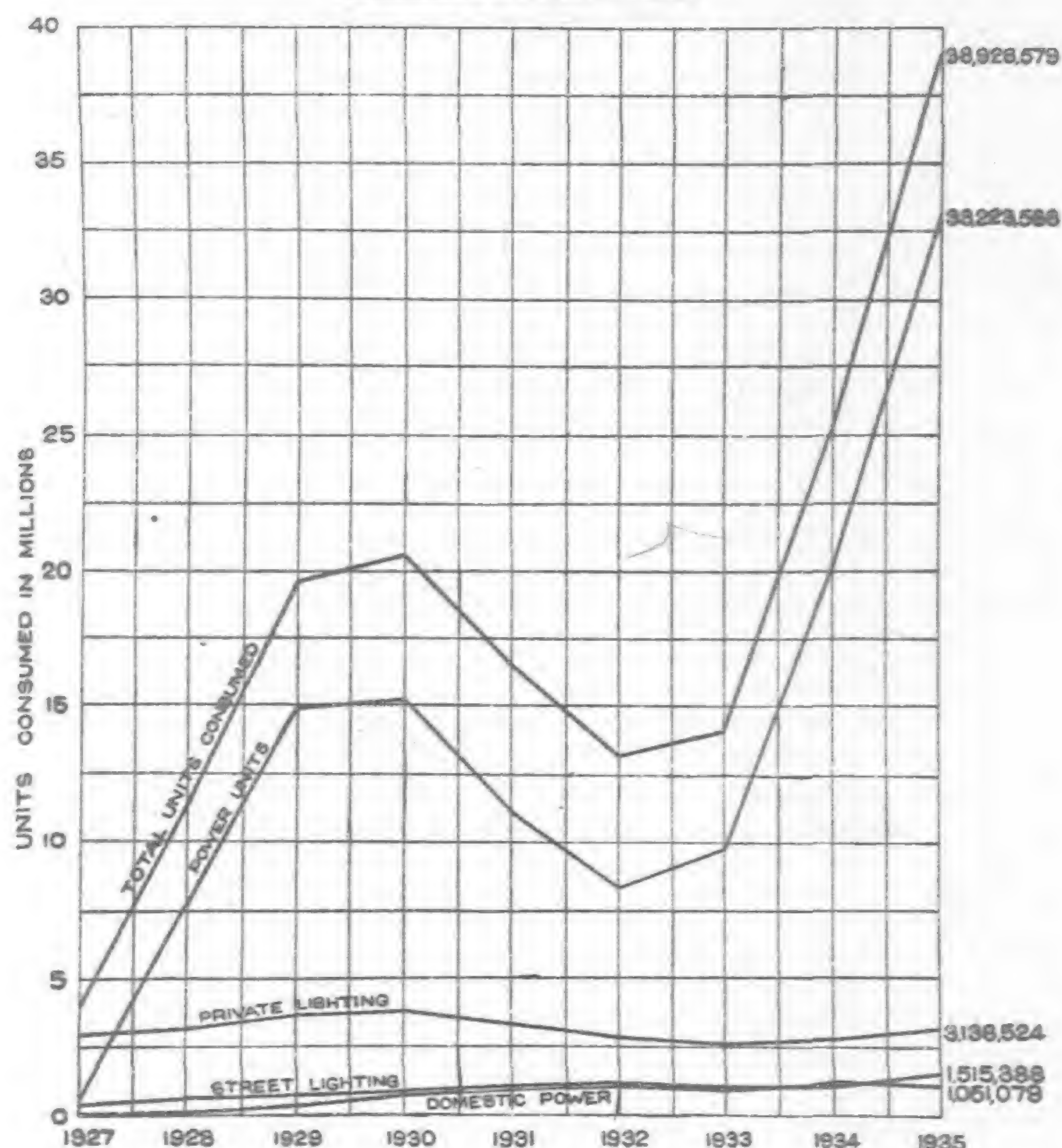


Bungsar Power Station at Kuala Lumpur

BUNGSAR AND ULU LANGAT POWER STATIONS COMBINED WORKING 1935



KUALA LUMPUR ELECTRICITY SUPPLY UNITS CONSUMED



per cent over 1926, which represents an average annual increase of over 148 per cent during the nine years of the department's existence as a separate department. In 1926 only three towns in the Federated Malay States, viz., Kuala Lumpur, Ipoh and Seremban, had a public supply, but to-day even the smallest kampongs, within reasonable reach of the distribution mains, enjoy the benefits of electricity.

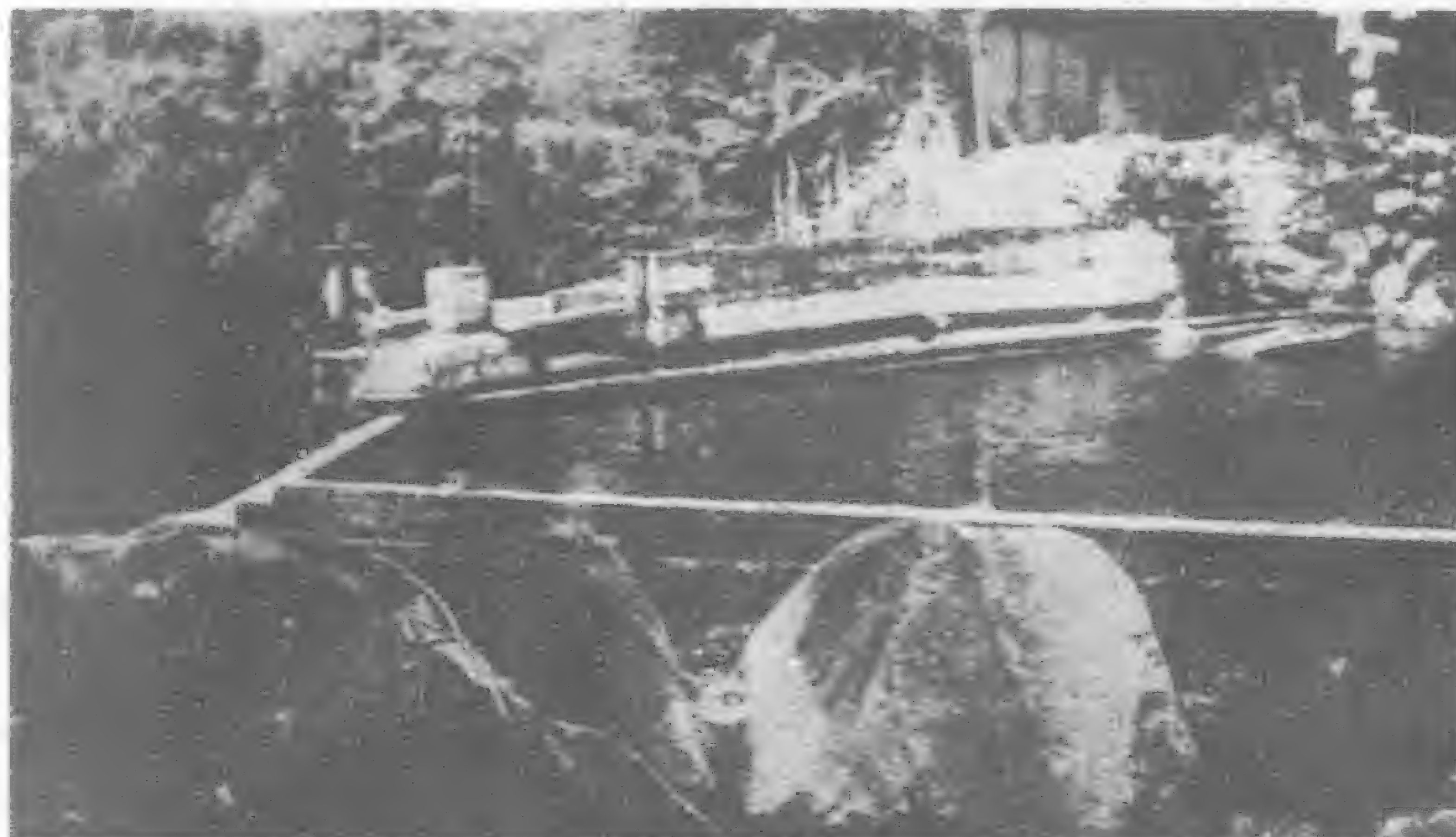
In 1926 the total plant capacity installed in the Federated Malay States by Government and companies, for the generation of electricity, was 29,477 kilowatts and the number of units generated was 86,259,138. At the end of 1935 the capacity had increased to 121,920 kilowatts and the total units generated during the year were 297,969,927. This large increase in consumption of electricity may be attributed to its adoption as motive power for tin mining and other industrial purposes, as well as for domestic cooking and refrigeration.

In the past Malaya produced tin by crude and primitive methods, and on account of facilities afforded by a benevolent Government in the way of railways and good roads it had a world-wide reputation for its low cost of production.

As the demand for tin increased dredges were introduced, which opened up a market for firewood, and the utilization of bakau wood from the extensive mangrove swamps created a profitable source of revenue to the Government.

With the opening of the Malayan Collieries, situated at Batu Arang, in the State of Selangor, the consumption of firewood decreased; and the introduction of internal combustion engines created a demand for liquid fuel. This fuel, which is imported free of tax, further adversely affected the bakau wood industry.

The importation of oil fuel into the Federated Malay States in 1925 was 16,893 tons which increased to 30,354 tons in 1926 and to 66,545 tons in 1928, while the figure for 1929 was 90,841 tons valued at \$4,569,678.



Lolo intake—The nature of the hillside does not allow of the construction of an impounding reservoir, hence the smallness of the intake

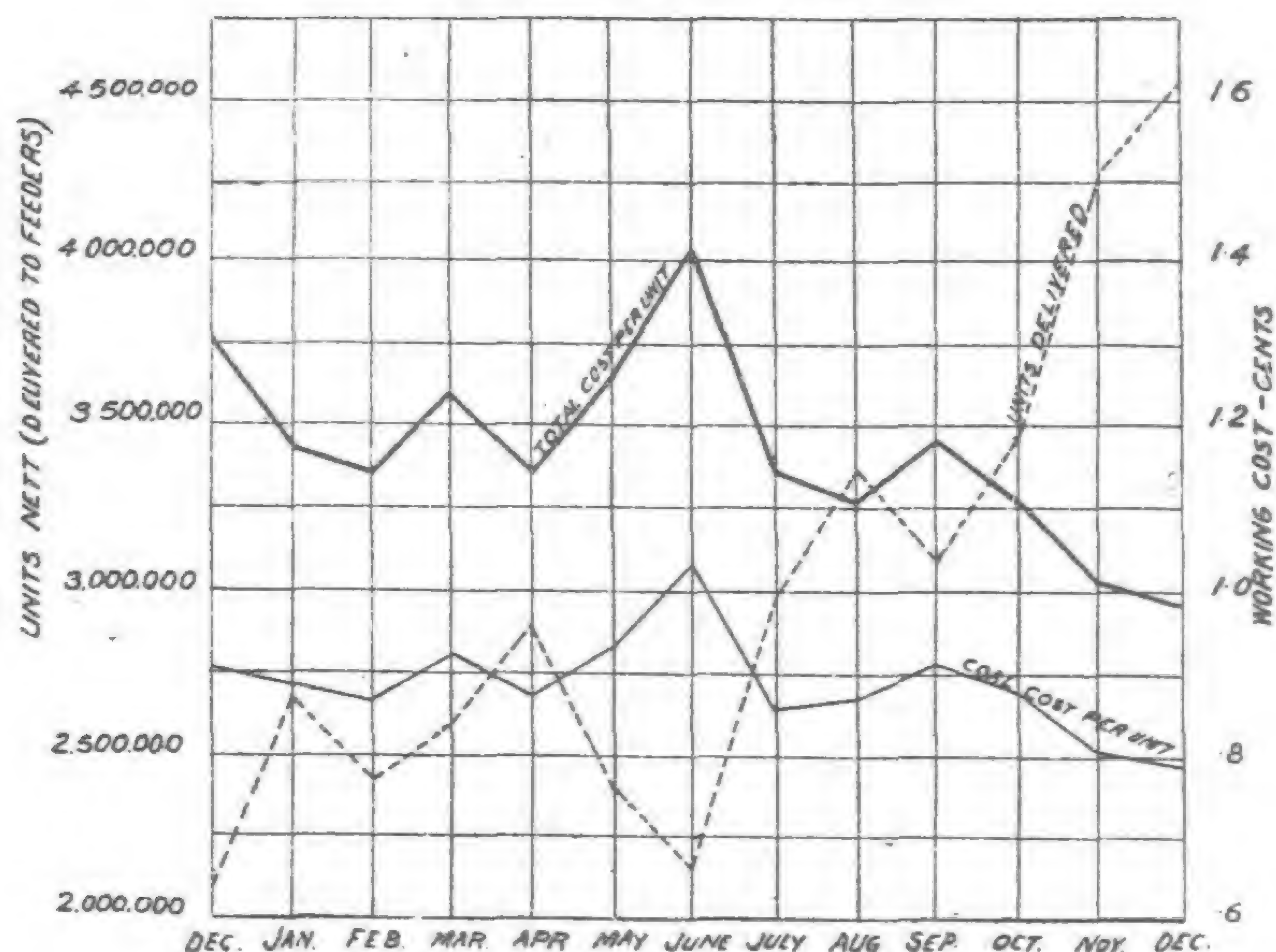
During 1928 the importation of kerosene oil also amounted to 22,075 tons valued at \$3,451,135 on which an import tax of ten cents per gallon was charged. The large increase in the consumption of imported fuel oil was due mainly to the adoption of internal combustion engines for mining purposes. During the most severe trade depression from which this country has just emerged, every possible source of economy had to be scrutinized and the adoption of electricity as a motive power was favored, particularly for Chinese mines.

Hitherto a good deal of prejudice had existed among the Chinese miners, but the numerous advantages of electricity were realized during the prolonged slump and the demand is now very persistent. In 1931 progress was retarded on account of the restriction imposed on the production of tin, and it was not until about the middle of 1934 that stocks were reduced and the price was raised to a remunerative level. It is significant, however, that throughout the period of depression the connections to the system steadily progressed, and one of the largest open cast mines in the country decided to modernize its plant and contracted to take its full requirements of electricity from the Government supply.

This seemed to be the deciding factor in the adoption of electricity by numerous other open cast mines and it was with some difficulty that the department was able to cope with the demand on account of depletion of staff, due to retrenchment. Each release of tin quota created an increased demand for power and by the end of the year under review the hydro-electric and steam power stations in Kuala Lumpur were taxed to their full generating capacity.

There is still a wide field for further development in Selangor as the following table, supplied by the State Warden of Mines, shows. The figures were only compiled up to the

BUNGSAR POWER STATION 1935



end of 1935, but the conversion from steam and oil to electric power is clearly demonstrated:

Date	Steam	Oil	Electricity
June, 1934	10,681 h.p.	9,298 h.p.	8,579 h.p.
December, 1934	8,790 ..	11,427 ..	12,815 ..
June, 1935	8,980 ..	10,473 ..	15,150 ..

The development of electric power has also been phenomenal in the State of Perak, over the greater part of which the Perak River Hydro-Electric Power Co., Ltd., holds a concession. Although the other States in the federation are not so highly developed industrially, steady progress is evident throughout, particularly for lighting and domestic purposes. The importance of an efficient and cheap supply of electricity cannot be stressed too much, because the reduction of cost of production of tin and other commodities is a valuable offset to a low market price.

Great progress has been made in other tin producing countries during the last three years in the development of water power for modernizing and electrifying the mines to enable them the better to compete against Malayan tin.

Electricity for Mining.—One of the most common methods of extracting tin in this country is the open cast mine. After the overburden has been removed the tin bearing ground is dug with picks or changkols, and water is run over it either by gravity or under pressure. The mixture of sand, soil and water is then pumped to the surface into a long sloping wooden trough called a "palong." Sand and soil, being lighter, than the tin-ore, are automatically washed away by gravity, and the tin-ore which resembles black sand is left behind and collected and subjected to further cleaning processes.

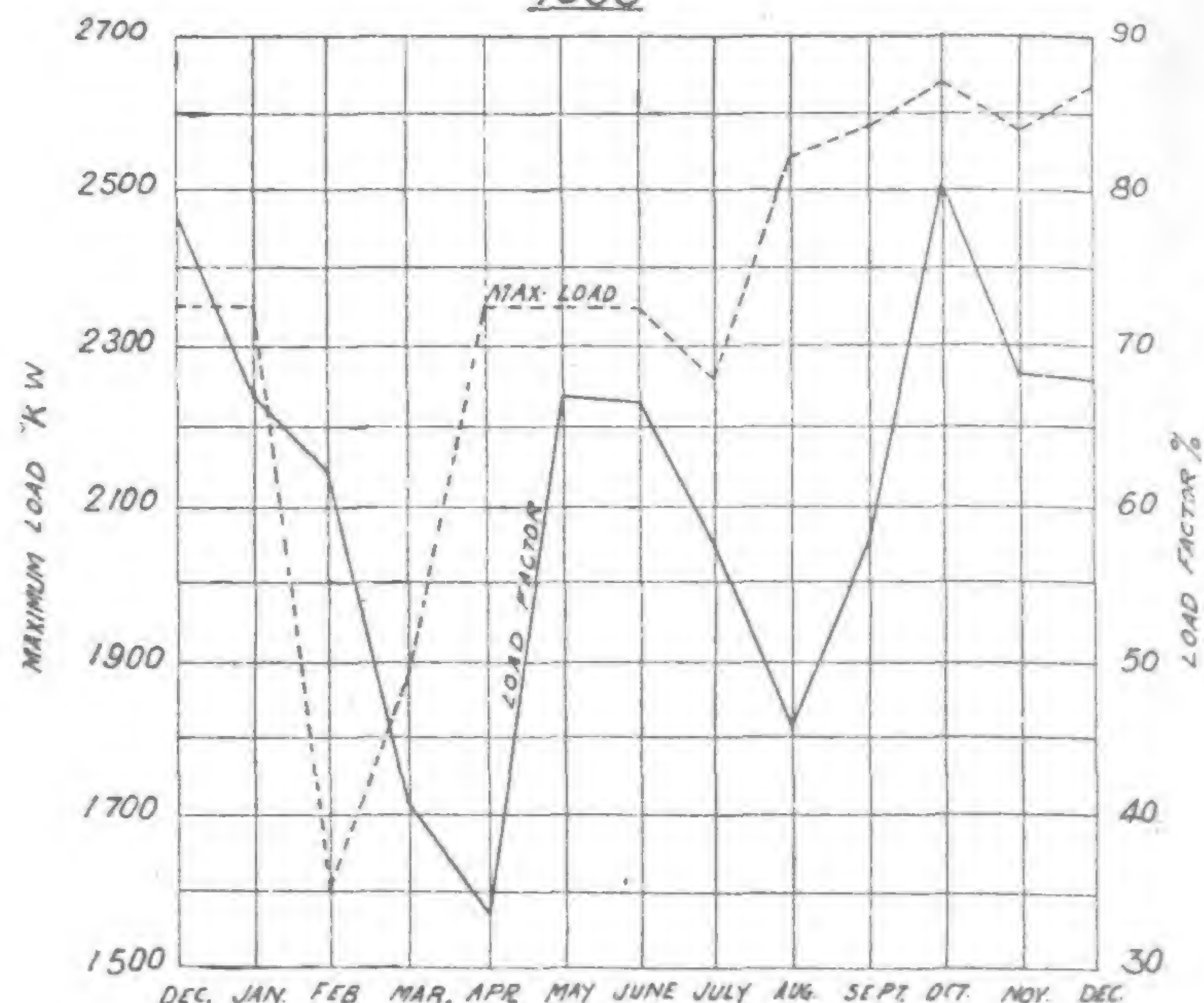
As the mines get deeper more power is required for pumping and more general use is made of monitor pumps to supply water at high pressure for the jets employed to cut away the ground. Another form of mining which is carried out in alluvial ground is by dredging. The most modern dredges are fully equipped with electric motors, while the older ones are rapidly being converted to electric drive. The power is transmitted to the dredge by means of trailing cables supported at intervals by empty oil drums and this method allows for the free lateral and forward motion of the dredge. The voltage of these cables is usually 3,300 or 6,600-volts.

These large dredges are capable of digging to a depth of 130 feet below the surface.



Junction of three pipelines at Upper Station. The pipelines come from Lepoh, Pomson and Lolo intakes

ULU-LANGAT HYDRO ELECTRIC STATIONS 1935



There are also various lode mines throughout the country and the tin bearing rock is crushed by means of stamps, the resulting powder is then passed through the usual washing processes. The largest underground tin mine in Malaya works to a depth of 1,400 feet, operations taking place at different levels, and there are approximately 200 miles of underground passages or tunnels. This mine is electrically equipped throughout and a power station consisting of internal combustion engines has been erected on site in the heart of the jungle.

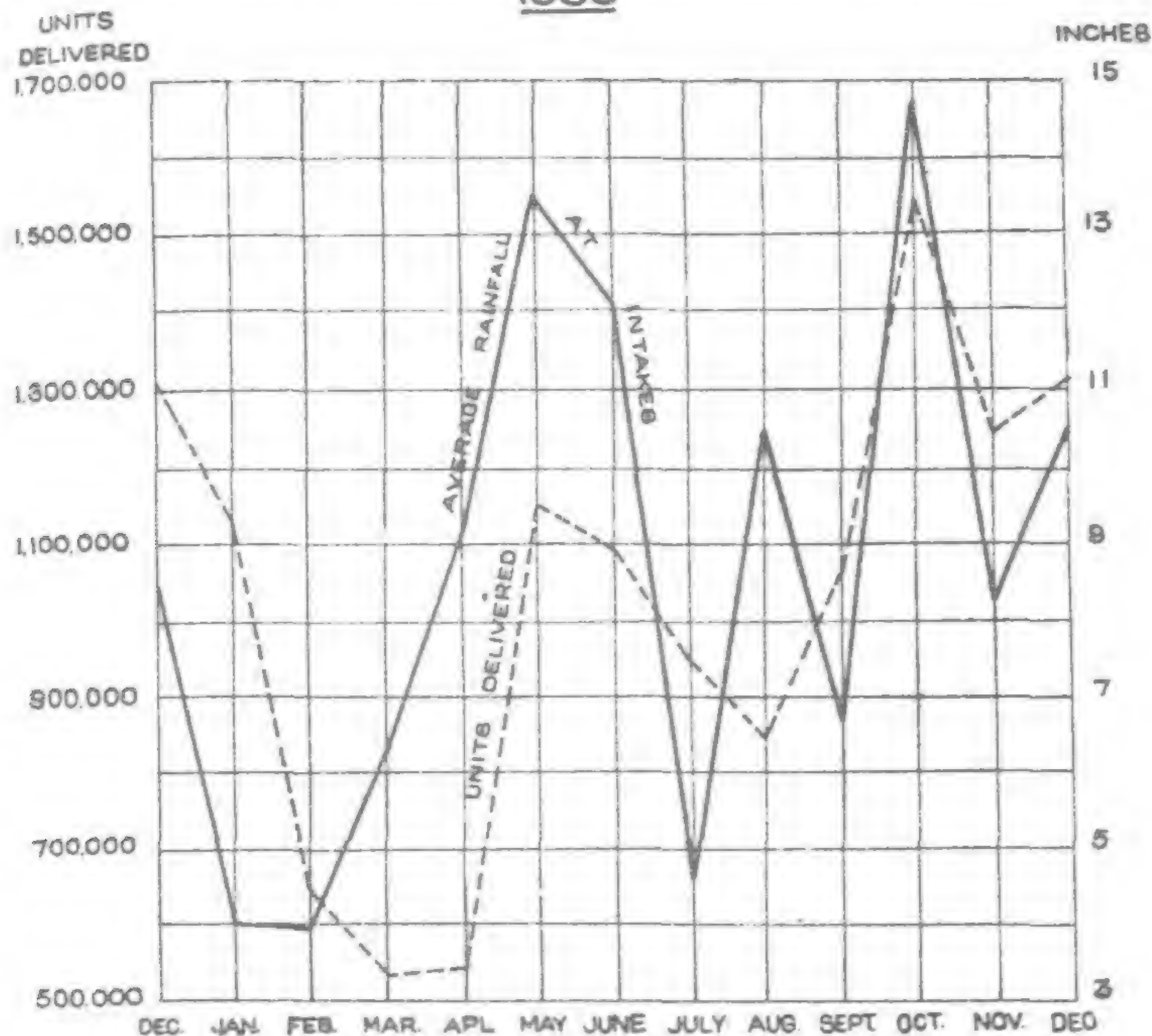
The temperature and humidity at such a depth in a tropical country can only be appreciated by those whose duties require them to go underground. The installation of a modern sub-station at a level of 1,000 feet below the surface, where the humidity is frequently as high as 100 per cent with the thermometer, at 100° F., and the successful operation of the plant under such trying conditions is a tribute to the ability of the engineers as well as to the manufacturers of the equipment. Electricity is extensively used also for gold mining. The Raub-Australian Gold Mining Company's mine is fully equipped and is supplied from its own hydro-electric power station.

There are 149 power stations of one hundred kilowatts and over in the Federated Malay States, some of which are located in wild parts of the jungle. The Government's hydro-electric power stations at Ulu Langat, twenty-three miles distant from the Federal capital, are typical of some of these stations, in the immediate vicinity of which one may unexpectedly meet some of the wild animals which inhabit the Malayan jungle. Pug marks of tiger along the transmission line paths are common, and the activities of wild boar are in evidence. Wandering tribes of Sakai occasionally visit the upper reaches of the penstocks, and their weather "organ pipes" made of bamboo can be seen tied to trees at high points in the nearby hills. When there is a strong breeze blowing the "organ" notes produced from these weather indication pipes can be heard for long distances.

The hydro-electric stations staff is mainly composed of Malays under a European engineer. The dreary routine of shift work is occasionally tempered with some mild excitement. On one occasion the Malay chargeman whilst taking log reading received a shock, but not an electric one. In spite of his being a Malay he began to doubt his sobriety because he found the head of a snake staring at him from behind the back of a switchboard meter.

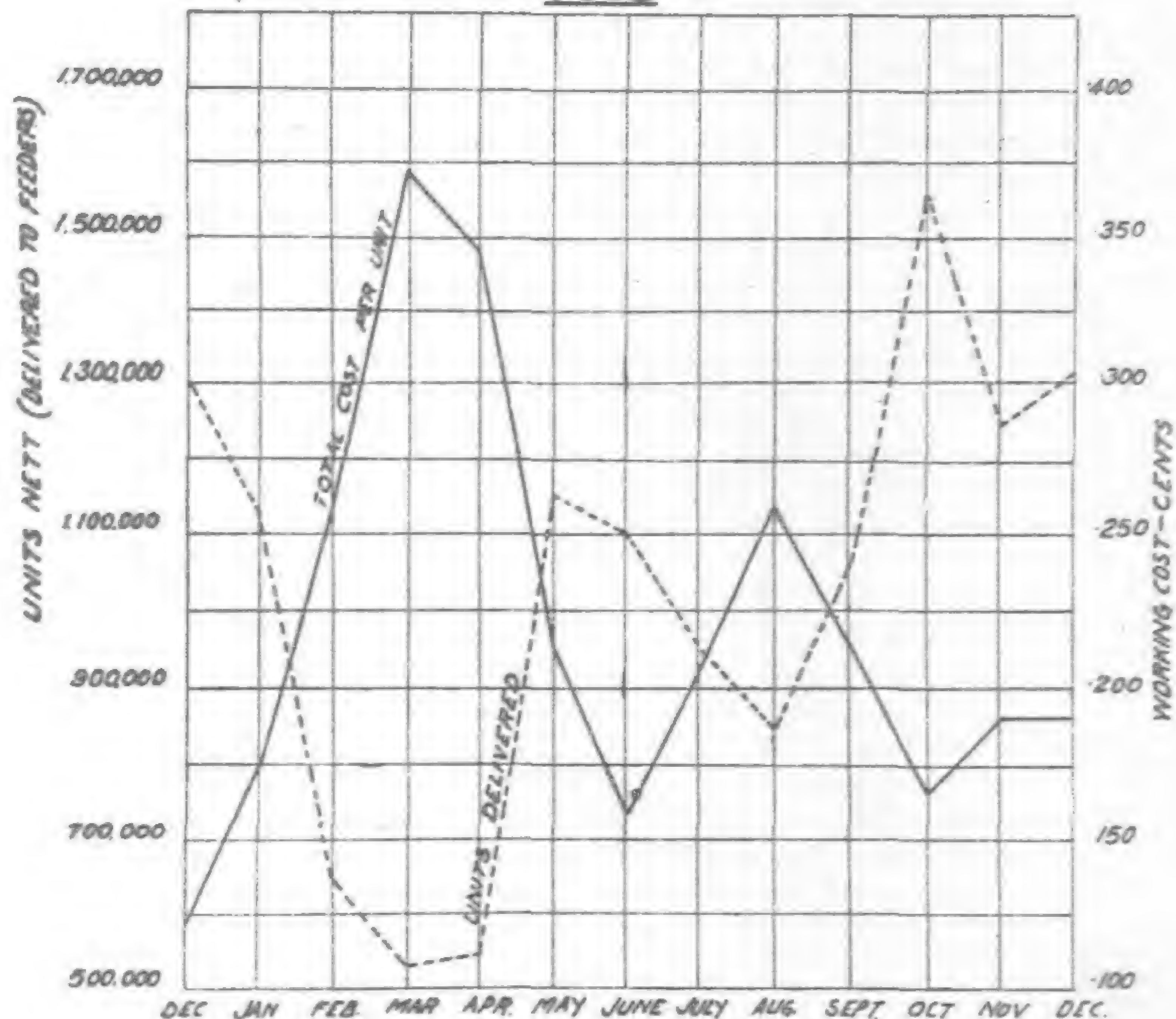
ULU-LANGAT HYDRO-ELECTRIC STATIONS

1935



ULU LANGAT HYDRO ELECTRIC STATIONS

1935



After some difficulty it was persuaded to desert its temporary quarters and it proved to be a thin grass snake eighteen inches long. On another occasion some difficulty was experienced in inducing one of the machines to carry its full load, and the turbine was opened out for examination when a six-foot cobra was found coiled round one of the nozzles.

Atmospheric disturbances are daily occurrences on some part or other of the overhead transmission system and occasional flashes over of the insulators are experienced, which may temporarily put the line out of action. Such a mishap once occurred, but the switch was immediately replaced and held out. It was known, however, that once there had been a spill over, it was only a matter of hours perhaps when the insulators would completely shatter. An emergency gang was therefore sent along the jungle path to discover the place, with instructions to signal to the mains engineer who was hovering round overhead in one of the local club's aeroplanes.

As soon as he received the signal he flew back to civilization and arranged for the line to be made dead and returned in the plane to the locality of the fault, dropped a green cloth on to the men, which indicated to them that the line was clear. The insulators were immediately replaced, the men descended from the tower and

waved back to the engineer to signify that the work was completed. He thereupon returned once more and gave instructions to re-energize the line which had been out of commission for only twenty minutes.

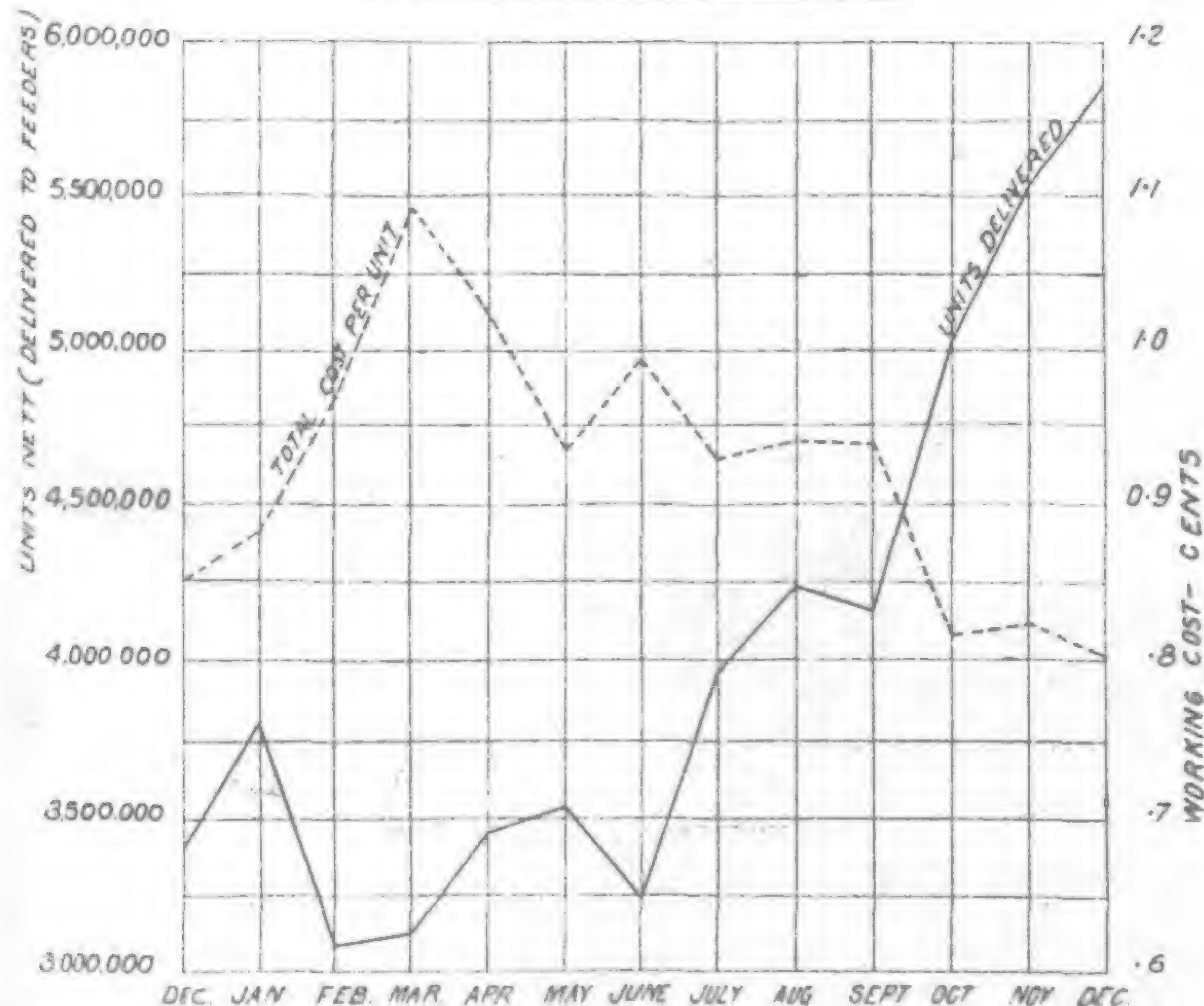
Health.—The efforts made to improve living conditions at the hydro-electric stations have shown gratifying results. There is a distinct improvement in the general health of the staff, and malarial casualties have been greatly reduced through systematic oiling and clearing, and the introduction of better sanitary arrangements. A properly registered club has been formed and the staff take an active interest in football, badminton and cricket.

Practically all the stations have their own clubs under the registered name of "Kilat Club" (meaning lightning) and the Kuala Lumpur Kilat Club has a membership of 120; a club building with a billiard table, canteen and a sports ground. Active interest is taken in sports and the club teams take part in local league games. An annual dinner is held at which sports prizes are distributed.

Training of Technical Staff.—The Federated Malay States Electrical Department has 68 technical assistants of various grades. In 1930 a new scheme was started for training locally born and locally educated boys of various races at the Kuala Lumpur Technical School.

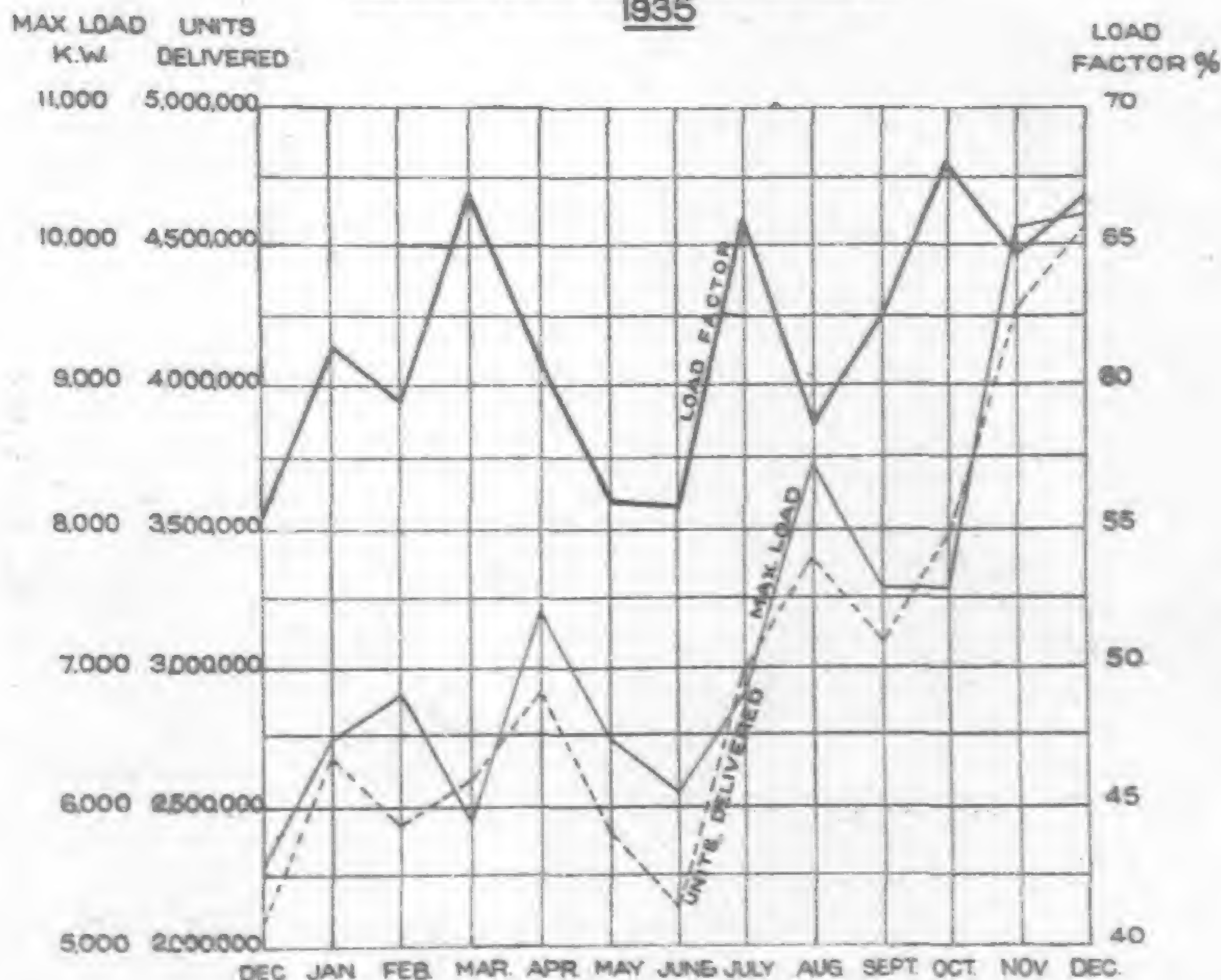
BUNGSAR AND ULU-LANGAT POWER STATIONS

COMBINED WORKING 1935



BUNGSAR POWER STATION

1935



Apprentices are appointed by the department and during their four years at the Technical School the students are given 12 months' practical training in the various sections of the department, such as generating stations, distribution, construction, wiring, meter testing, etc. After passing their final examination they are posted for duties in the various branches throughout the four States. Promotion from one grade to another takes place only by passing the necessary grade examinations.

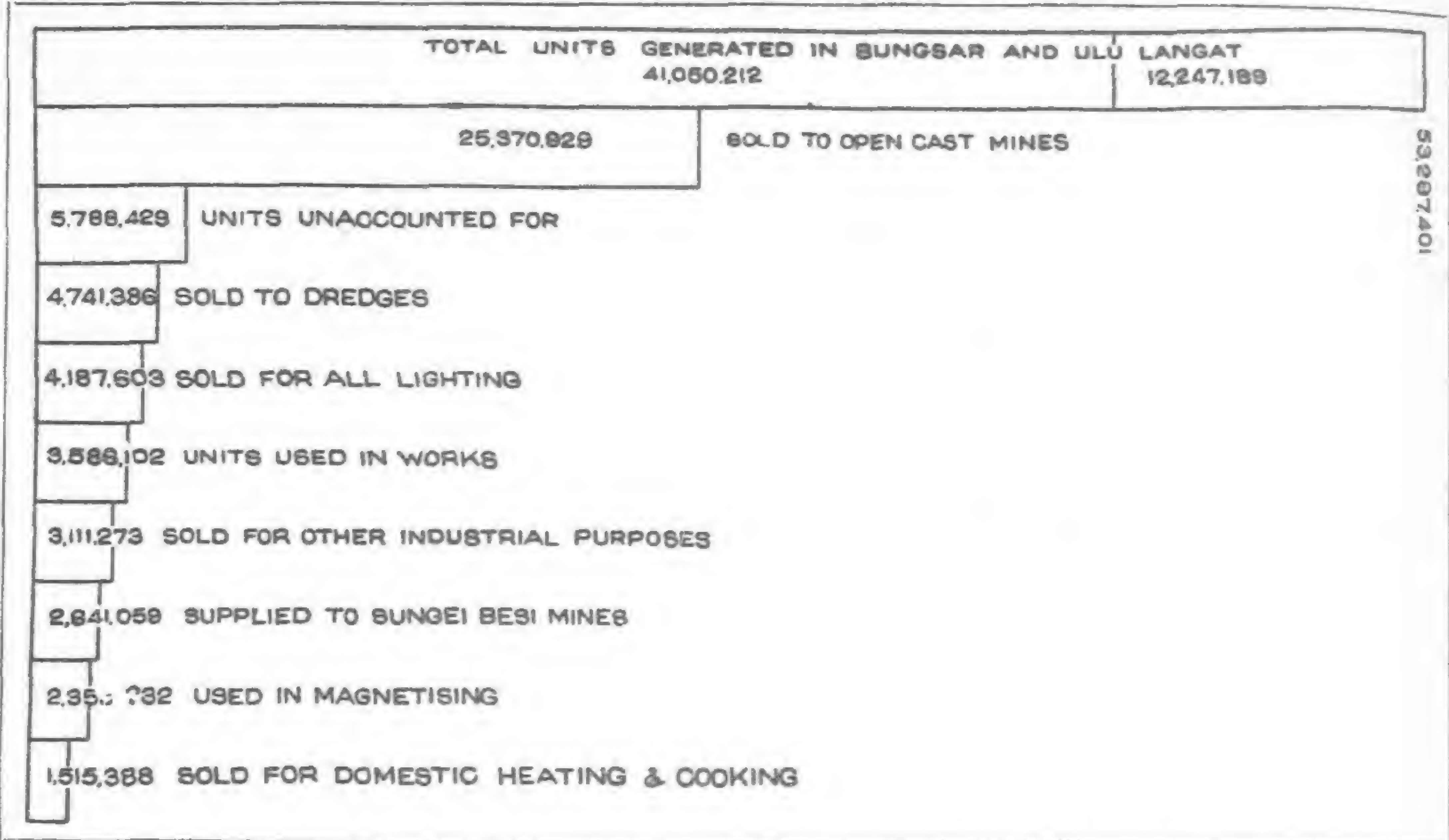
The Electricity Enactment.—The Electricity Enactment of the Federated Malay States requires that electrical engineers, chargemen and wiremen shall hold certificates of competency issued by the Board of Examiners, authorizing them to carry out the duties incidental to their electrical work in the Federated Malay States. Newcomers to Malaya are not always aware of these requirements and cases are on record where electrical engineers having succeeded in securing posts, have had to relinquish them on failing to qualify for the necessary certificates of competency.

Examinations for chargemen and wiremen are held monthly at Kuala Lumpur and Ipoh. The number of candidates have increased considerably during the last two years, a striking proof of the rapid development of electrical undertakings in the country.

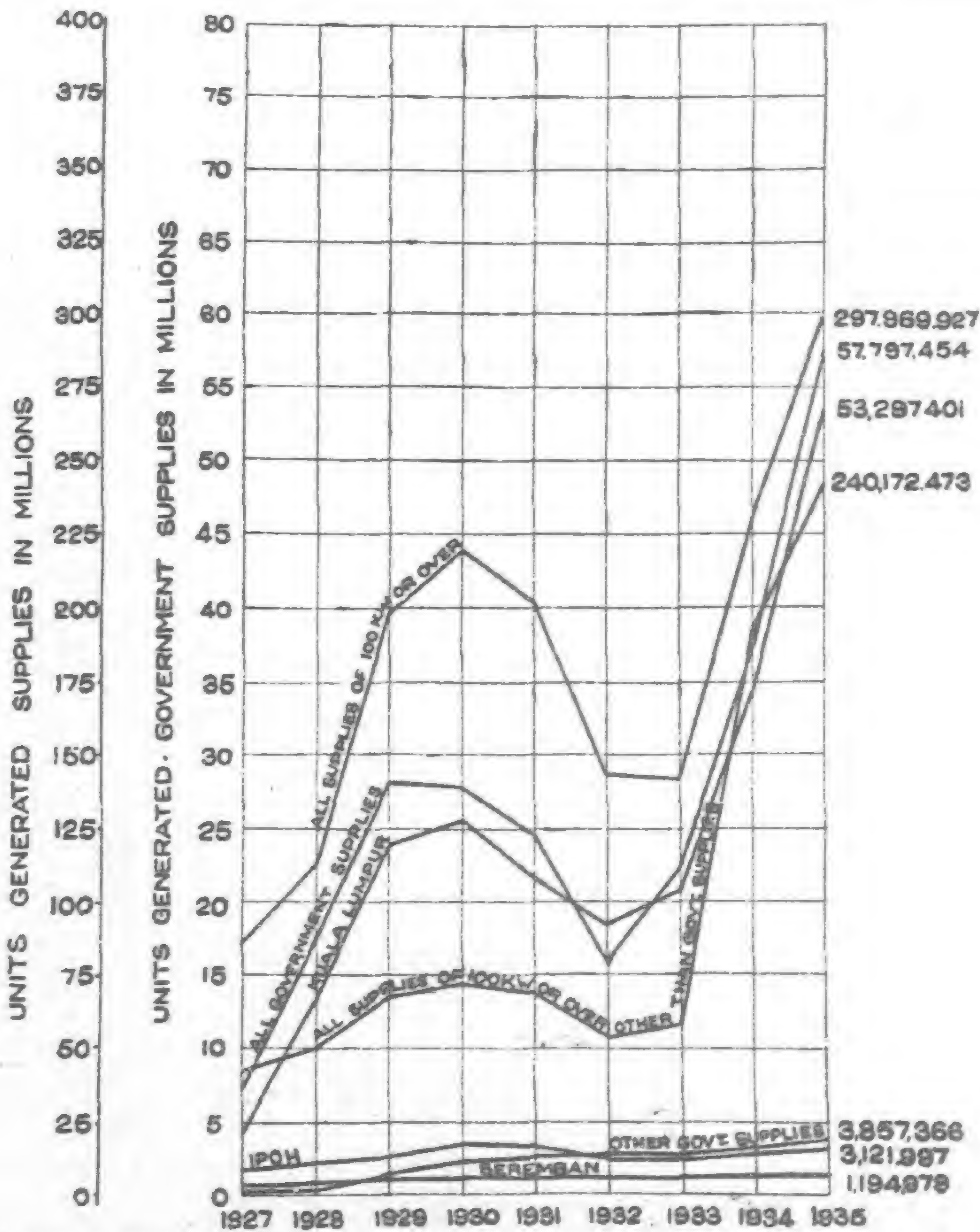
Accidents.—The object of the Electricity Enactment is to safeguard the public and operators of electrical equipment from accidents arising out of faulty manufacture, bad installation work and careless handling of electrical appliances. In order to enforce the necessary safety precautions laid down, periodical inspections are carried out by the Inspection Branch of the department. It is gratifying to be able to report that there were no fatal accidents in the Federated Malay States during the year under review and that the number of non-fatal accidents did not exceed half a dozen.

Financial

The total estimated revenue of the Electrical Department for



Kuala Lumpur electricity supply—Units generated and distributed in 1935



1935 was \$2,205,440 whereas the actual revenue was \$2,660,955 which is 20.6 per cent in excess of the estimate.

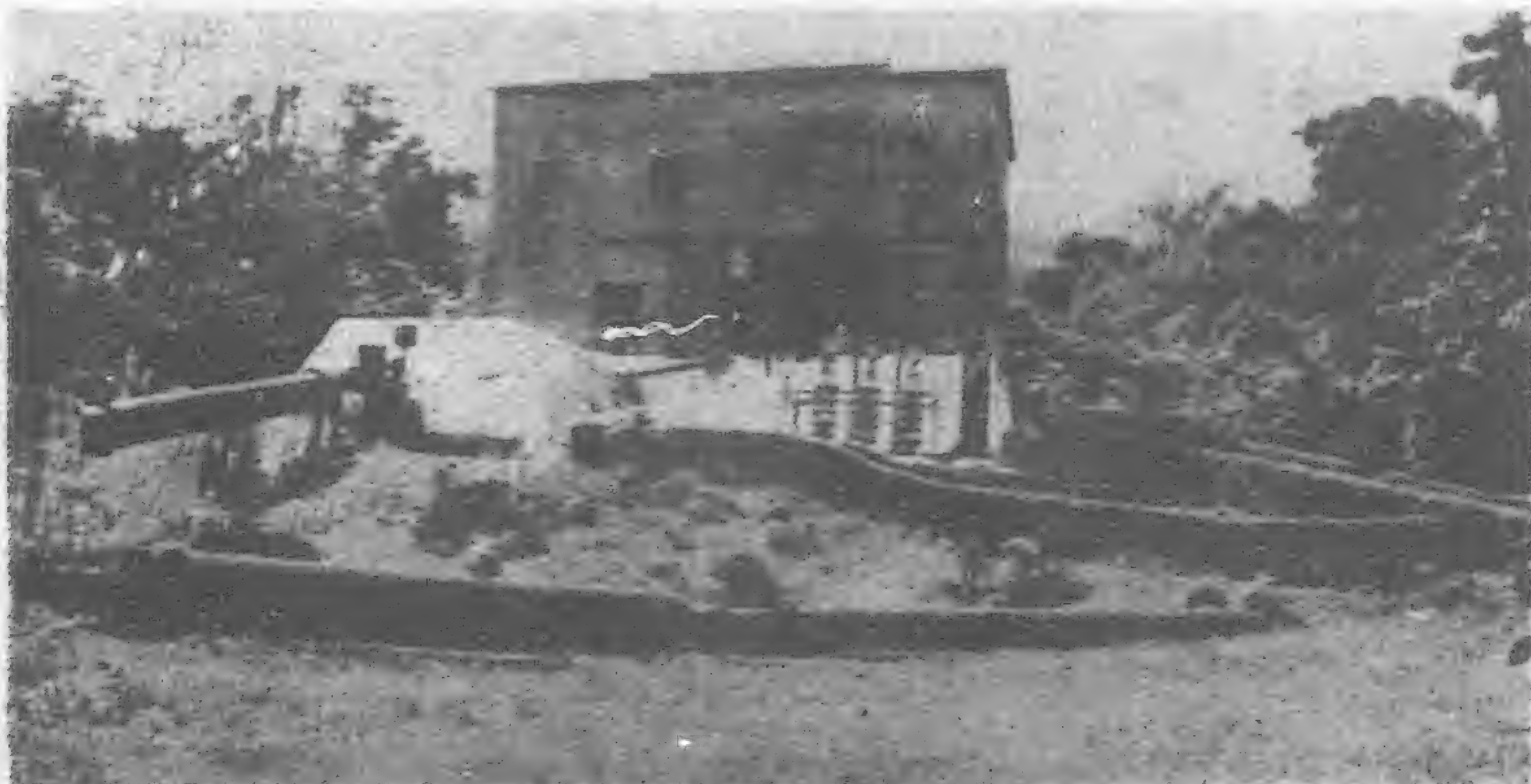
The estimated expenditure for 1935 was \$1,212,204 and the actual expenditure was \$1,374,798 which is 13.4 per cent in excess of the estimate. The increase of expenditure is mainly accounted for by the purchase of additional fuel to meet the increased demand.

The total charges to cover sinking fund, leave pay, passages and transport, pensions contribution, workmen's compensation and renewal contribution amounted to \$574,863 which brings the total expenditure up to \$1,949,661 leaving a profit balance of \$711,294.

The capital account of the department is as shown below :

Sterling Loan Account	\$2,607,011
Local Loan Account	4,037,490
Ordinary Capital (advanced from Government Revenue)	7,787,729
Total	\$14,432,230

(Continued on page 423)



Ulu Langat Upper Station



Ulu Langat Lower Station

A Metrovick Turbine Installation in China

ONE important advantage of the Metrovick Self-contained Turbine Unit is its simplicity, both of installation and operation, and in no field has this proved of greater value than in China, where relatively small units are often required for industrial and public supply service in more or less isolated locations.

Although the design is relatively new, some nine turbine sets of this type are already installed or on order for China, several having been in service for a number of years.

The unit, which we here illustrate, was recently installed through the medium of Messrs. Arnhold & Co., of Hankow, for the supply of power to the adjacently situated Foh Sing Flour Mill, and the Sung Sing Cotton Mill. It is the largest machine of this particular type installed by the Company in China, being of 3,000 kw. maximum capacity. The turbine is designed for the relatively high operating steam conditions of 350 lb. g. 700° F. and runs at 5,000 r.p.m. It consists of a velocity compounded stage followed by nine single impulse stages, and is arranged for the withdrawal of steam at two points for supplying two stage feed heaters, and a low pressure evaporator.

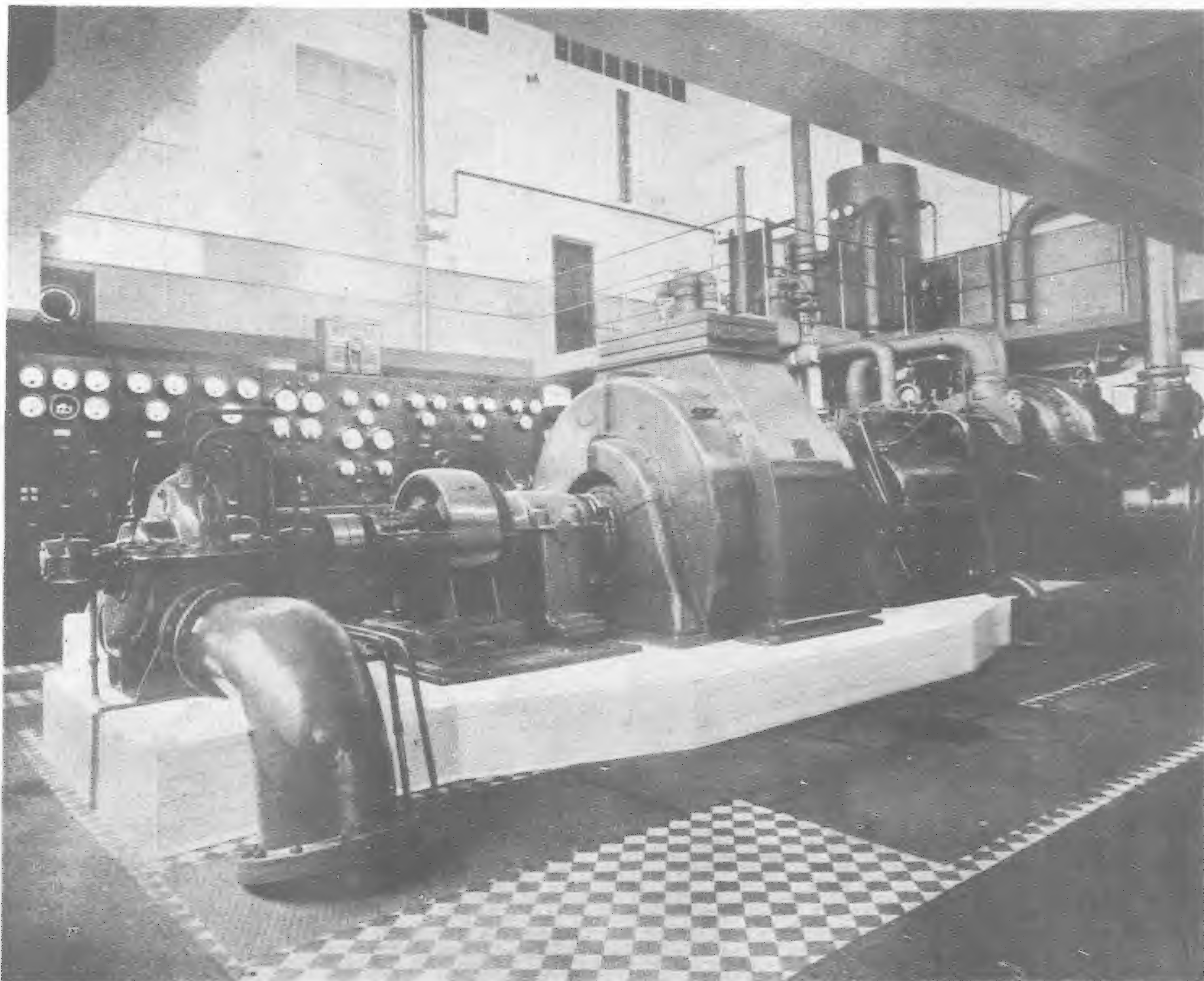
The reduction gear is of the double helical type having a speed ratio of 5,000/1,000, and in accordance with Metrovick practice for this type of plant, the pinion is arranged vertically above the gear wheel. The alternator, running at 1,000 r.p.m., is of the enclosed type, wound for 3 ph. 50 per. 3,300-volts and ventilated

on the closed circuit system. The cooler is fitted with Still type wire-wound tubes, and is supplied with cooling water from the circulating water system. It is arranged horizontally below the center of the alternator, the cooled air on the discharge side dividing and flowing through ducts to the air inlets at each end of the alternator stator. Provision is made to allow the air to be discharged into the engine room through an opening at the top of the yoke under emergency conditions, and for this purpose a series of air valves are provided, operated by a lever as seen in the illustrations.

The condenser is of the surface type formed integral with the turbine exhaust casing, and lying entirely above floor level. It has a cooling surface of 2,740 square feet, and is designed for cooling water at 80° F. The circulating water is normally taken from a nearby river, the winter level of which is nearly 100 feet below the turbine level, while in summer the river rises some 60 feet. In order to cater for this abnormal change in head, a pump driven by a variable speed motor is mounted on a raft with flexible pipe connections and discharges to a sump, from which the direct coupled pump on the turbine unit takes its supply, discharging through the condenser to an outlet sump. At certain periods the water supply is taken from ponds which lie at about the same level as the suction pump, and under these conditions the river pump is shut down.

The two feed water heaters and the gland steam heaters are of Metrovick manufacture, being of the hairpin tube type; they raise

(Continued on page 423)



Metrovick self-contained 3,000 kw. turbo-Alternator unit installed at the Foh Sing and Sung Sing Mills, at Hankow, China

Rolling Stock of the Malayan Railways

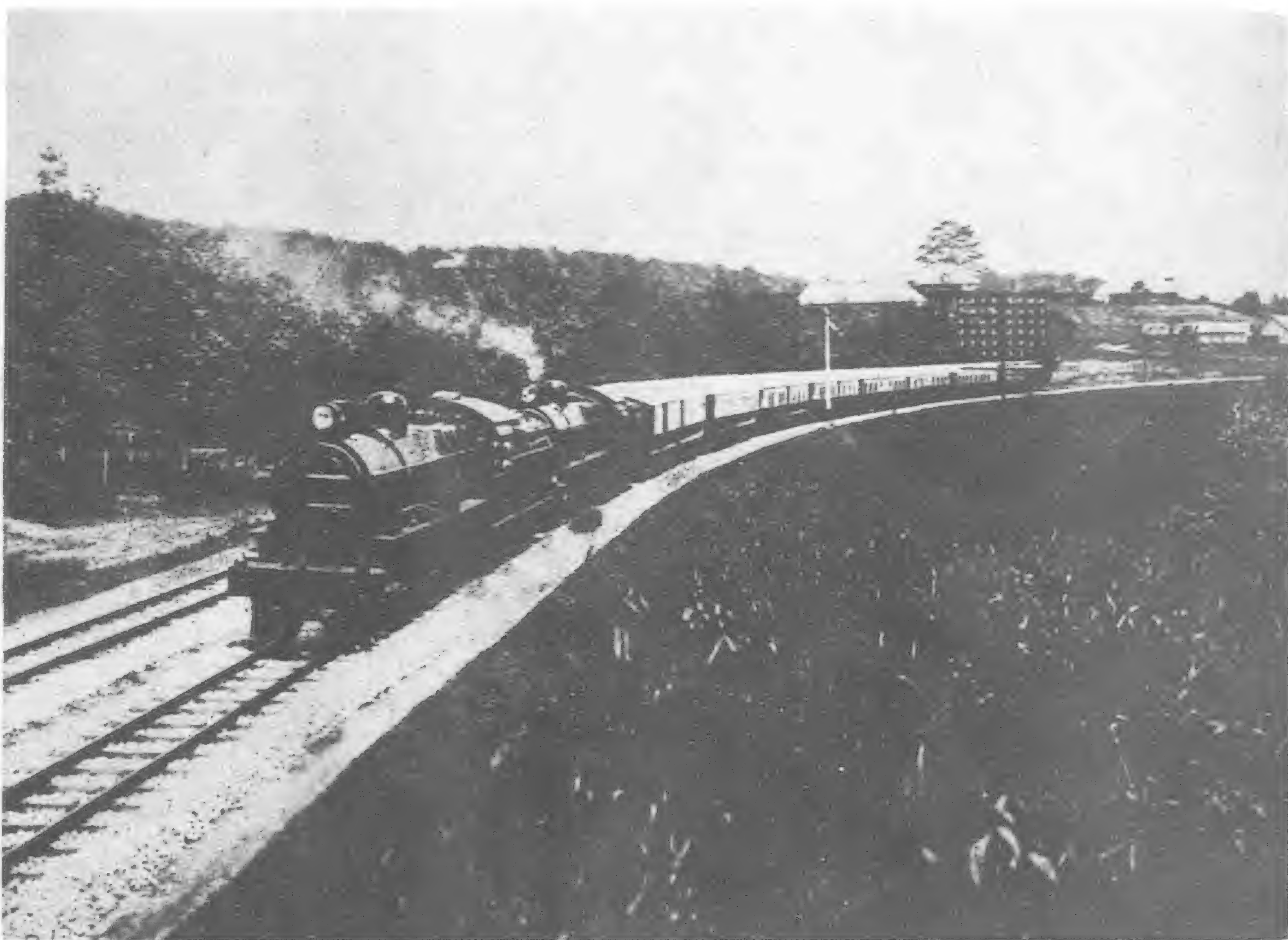
Past and Present

(This article is the fourth of a series reviewing the history and progress through a half century of the railways of Malaya, compiled from a record published by the Federated Malay States Railway Administration. The preceding articles, "Fifty Years of Railways in Malaya," "Railway Bridges and Railway Buildings in Malaya" and "Locomotives of the Malayan Railways" appeared in the April, July and August numbers of *The Far Eastern Review* this year.)

As in the case of locomotives the two pioneer Administrations of Perak and Selangor have maintained a close liaison in regard to the design of passenger carriages. Although a number of four-wheeled vehicles were in use in the earlier years, bogie stock was introduced in 1901 and the principle of the open center corridor with through communication between vehicles was established. Clearly this was the best type for use on a railway such as the Federated Malay States Railways, permitting as it does a continuous check on passenger tickets, yet it would not have been strange had the designers been influenced to a greater extent by Indian practice, which had adopted the English compartment system, at any rate in respect of first class accommodation. As it is, they built better than they knew, and made it possible from the start to develop a practice which could take advantage of all amenities of rail travel as demand arose, without radical alteration either of design or of custom and habit of the traveller.

These early coaches, a few of which still remain in the disguise of departmental vehicles, were in those days fine examples of the coach builder's art. They had a uniform length of 44-ft. 11-in. over headstocks and were carried on two 4-wheeled bogies, the diameter of the wheels being 2-ft. 0-in. They were 7-ft. 3-in. in width at the waist rail, and were of five principal types. The full first class carriages had seats for 39 passengers. The seats,

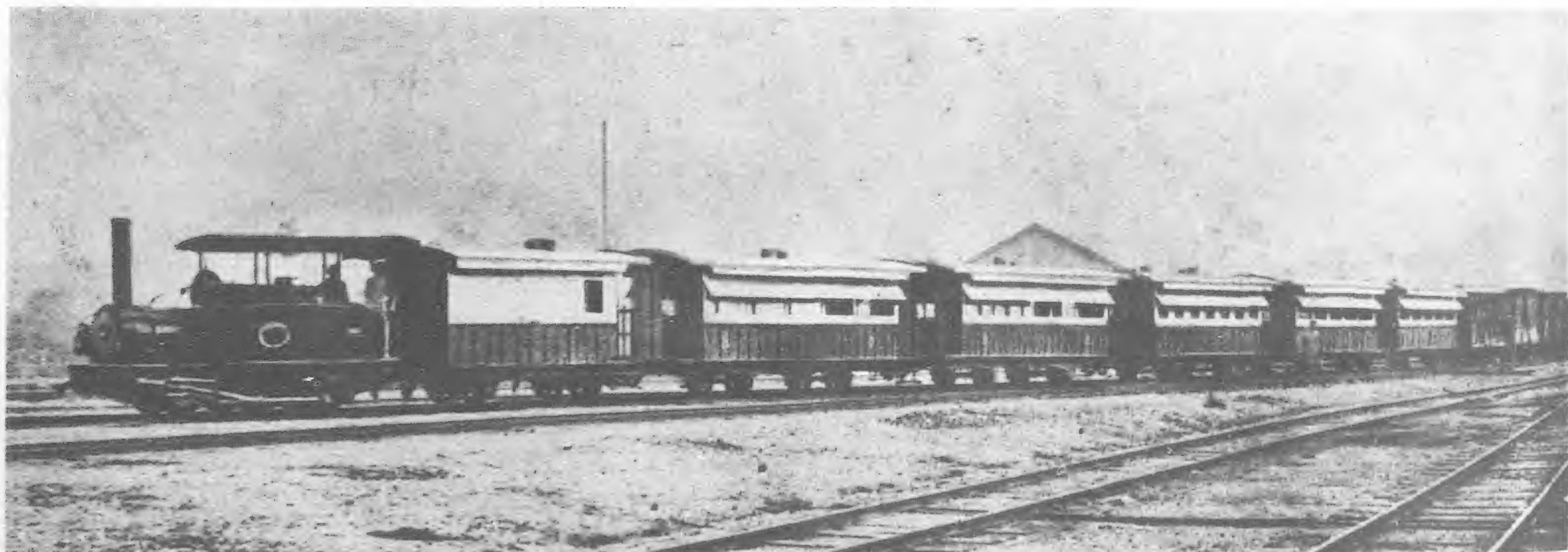
which could be pulled out to form a couch, were well upholstered and covered with hide. Lavatory accommodation was provided. A similar form of seating was adopted in the second class carriages which carried 42 passengers. The composite first and second class carriages seated 13 first and 26 second class passengers. Lavatory facilities were provided in both cases. The third class, and com-



Special train conveying H.R.H. the Duke of Gloucester, K.G., P.C., G.C.V.O., from Penang to Singapore, April 18, 1929

posite third and van had accommodation for 76 and 22-44 (according to van accommodation) respectively.

In external appearance there was some difference between the Perak and Selangor designs. In both sunshades were provided—the one link with Indian practice. On the Perak coaches these took the form of sheeting carried on brackets at an angle of 45°



Four-wheeled coaching stock in use on the Perak Railway in 1885

from the vertical, the windows thus being shaded in most positions of the sun. In the Selangor design the sunshades were parallel to the coach side. So far as can be ascertained, 71 coaches of the Perak type and 63 of the Selangor type were constructed.

For the Singapore Government Railway an improved "Selangor" type was adopted. These vehicles had much the same general dimensions and characteristics but were slightly wider, the measurement at the waist rail being 7-ft. 6-in. There was also a small increase in height. There was thus a more spacious look and feeling about these vehicles, of which nine were built. Before going on to describe the next great advance in coaching stock design, two factors may here be mentioned as having a considerable influence on later construction not only of carriages but of the line itself.

The "Jones" coupler had been adopted from the start. This coupler incorporates in one assembly a central buffer and a buffer hook. A vehicle fitted with this device had at one end a buffer, and at the other end a buffer and a hook. Both buffers were identical, and should a vehicle be turned (and several turntables for wagon stock existed) it was a simple matter to transfer the hook from one end of the wagon to the other. But passenger stock required the use of a screw coupling which was incorporated



Sleeping carriage

in the right direction. The peripheral speeds of the journals were reduced, as well as tractional resistance, while it permitted the eventual introduction of electric train lighting. On the other hand the floor of the vehicle was raised some 9-in., while the height above rail level of the buffer had perforce to be maintained at 1-ft. 10½-in. This led to a rather more expensive type of under-frame capable of withstanding the stresses caused by drafting and buffing. Buffer heights being one of the factors affecting interchange of rolling stock, the F.M.S.R. practice was followed by the Royal Siamese Railway Administration in developing its meter gauge system, and coaching and wagon stock is freely interchanged.



Interior view



Interior view of State saloon

in one of the buffers and necessitating the interchange of the complete assembly should a vehicle be reversed. It was, therefore, necessary to avoid any possibility of a coach being turned, and in the construction of the line triangles were avoided. Coaches, such as saloons, which required turning for special reasons, carried a special double hook to enable two female buffers to be connected.

In 1906 the diameter of the standard carriage and wagon wheel was increased from 2-ft. 0-in. to 2-ft. 9½-in. No records now exist to show why this alteration was made, but it was a change

The completion of the main line between Kuala Lumpur and Prai, and the introduction of a through Express train called for improved stock and in 1906 what became known as the "mail" type carriages were introduced. They had the following general dimensions:—

Length over headstocks	56-ft. 11½-in.
Width at waist rail	8-ft. 0-in.
Height floor to cant rail	6-ft. 1-in.
Wheel diameter	2-ft. 9½-in.

Although a more roomy car, they preserved most of the features of the earlier type. The entrances were at the end, and vertical but somewhat abbreviated sunshades provided. Pull-out seats were fitted in both first and second class carriages, the former being upholstered in hide, and the latter finished in rattan. The usual slat design of seating has continued for third class carriages.

The "mail" type coaches had, of course, increased capacity, and although seating arrangements varied somewhat, the average accommodation provided was:—

First class	24
First and second class composites	12 and 17
Second class	42
Third class	88
Third van	30—46 (according to van size)

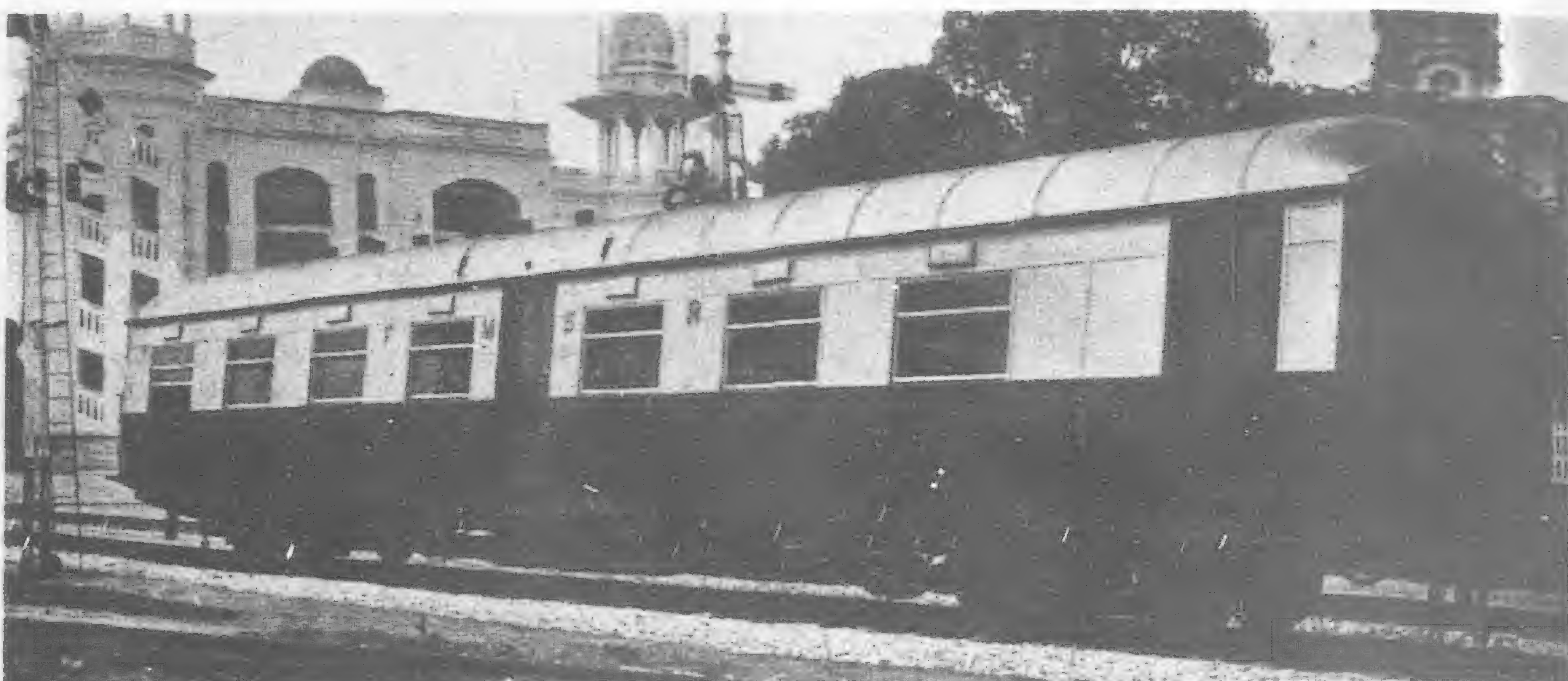


Restaurant car built at Central Workshops

The first "mail" type coaches were built in England, but it is known that about the year 1906 several bodies were constructed in Kuala Lumpur out of local timber, and mounted on underframes sent out from Home. On the completion of the Central Workshops in that year the practice of constructing carriage bodies was developed, and the great majority of coach bodies in service to-day have been built locally, out of teak and local timbers by Chinese labor.

The earlier coaches of this type had "clerestory" roofs. This type of roof was somewhat expensive both in construction and maintenance and was apt to be leaky in heavy rain and for the later coaches the elliptical type of roof was adopted. The greater height of the floor from rail level prevented easy access to the Perak and Selangor types and as a rule the two classes were not marshalled together.

The introduction, in 1914, of the rail motor train sets, gave to the F.M.S.R. a new design of coaching vehicle, which ultimately became known as the "boat shaped" or "turn under" type. These vehicles were 56-ft. 11 $\frac{5}{8}$ -in. (over headstocks) in length, and were 8-ft. 4 $\frac{1}{2}$ -in. wide at the floor level, and 8-ft. 11-in. wide at the waist level. The profile of the coach side was thus curved and above the waist rail had a "tumble home" which imparted a smart and very modern appearance to the stock. Although somewhat more costly to construct, the additional width permitted an increase of 50 per cent in first class accommodation, 33 $\frac{1}{3}$ per cent second and 25 per cent third class, the length of the coaches



This coach provides six compartments, two persons in each, in the daytime and sleeping accommodations, two beds, lavatory, etc., in each compartment at night. Commodious bathrooms complete with shower are a feature of these coaches



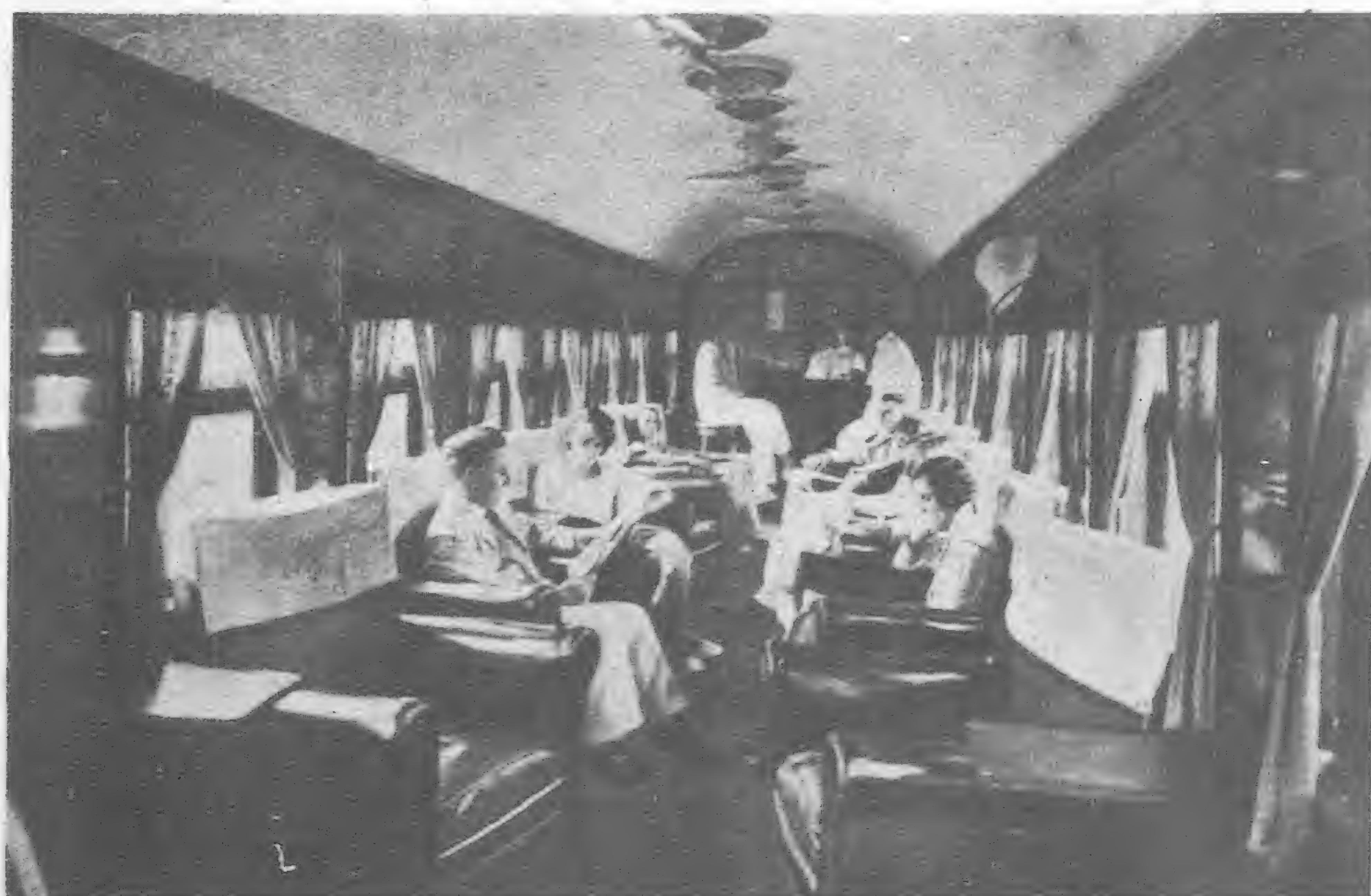
Two-berth cabin sleeping saloon

remaining approximately the same as of the "mail" type. In other respects the rail motor coaches varied somewhat from accepted practice. A compartment was provided for first class passengers, although the central corridor principle was preserved. No lavatories or latrines were fitted. The body of the engine coach was 60-ft. long, and seating capacity of the complete train was eight first class, 59 second and 110 third class passengers. Side doors, instead of end entrances were generally introduced for the first time. On the abandonment of the construction of the engines, the coaches were somewhat altered, van and latrine accommodation being incorporated, a standard carriage bogie being substituted for the 6-wheeled engine bogie. The presence of side doors, however, confined the use of these coaches to branch line work and in later coaches of this type a return to end entrances was made except in the case of certain special vehicles.

Although this type was first constructed in 1914, it was not immediately introduced, and the first post-war coaches to be constructed were of the "mail" type and it was not until 1920 that the "turn under" design was finally adopted. No modifications have since been made except for the substitution of steel panels for the wood sheeting with which it had been the practice to cover the body frame work. The placing upon a meter gauge a vehicle 9-ft. 0 $\frac{1}{2}$ -in. in greatest width was, of course, permitted by the somewhat generous loading gauge, but it is believed that the proportions are still somewhat novel. No trouble in service has, however, been encountered and it is thought that the considerable "overhang" has added to rather than detracted from comfortable riding.

Before going on to describe special vehicles it is convenient here to consider one important feature in the design of coaching stock, one which influences the comfort of the passenger to a considerable extent, and that is the bogie upon which the body is carried.

The Perak and Selangor type coaches had plate-framed bogies, each bearing having its own spring. They did not give comfortable riding,



Interior view of buffet parlor car attached to Kuala Lumpur-Singapore night mail trains

particularly at high speeds and bogies of the equalizing beam type were introduced with the first "mail" type coaches.

The elliptical transverse springs, coupled with oil springs located between the beam and bogie frame improved matters considerably. The wheelbase, however, was only 5-ft. 6-in. In 1925 the wheelbase was increased to 6-ft. 6 $\frac{3}{4}$ -in. and the design generally modified on lines originally introduced by the Siamese Administration. In 1926 a further attempt to improve riding was made, and on 40 coaches built in England a reversion to the plate-framed individual spring type was made. These bogies were not particularly successful, and even after minor alterations no improvement was secured as compared with the "Siamese" type, which is now standard and on which most of the superior or "luxury" vehicles are mounted.

Another amenity was the introduction of electric lighting in 1909. The "Stones" system was adopted, and is still standard on the F.M.S.R. The various improvements in the design of dynamo and in the storage and distribution of energy have been introduced, and the lighting of Malayan trains is most satisfactory and efficient.

Three saloons of the Perak and Selangor type were built. One still exists but is used only for departmental purposes. Sleeping, dining, bathing and cooking accommodation was provided. Some good carving was introduced into the interior decoration, but otherwise these vehicles do not call for special mention. A Postal sorting van was also constructed.

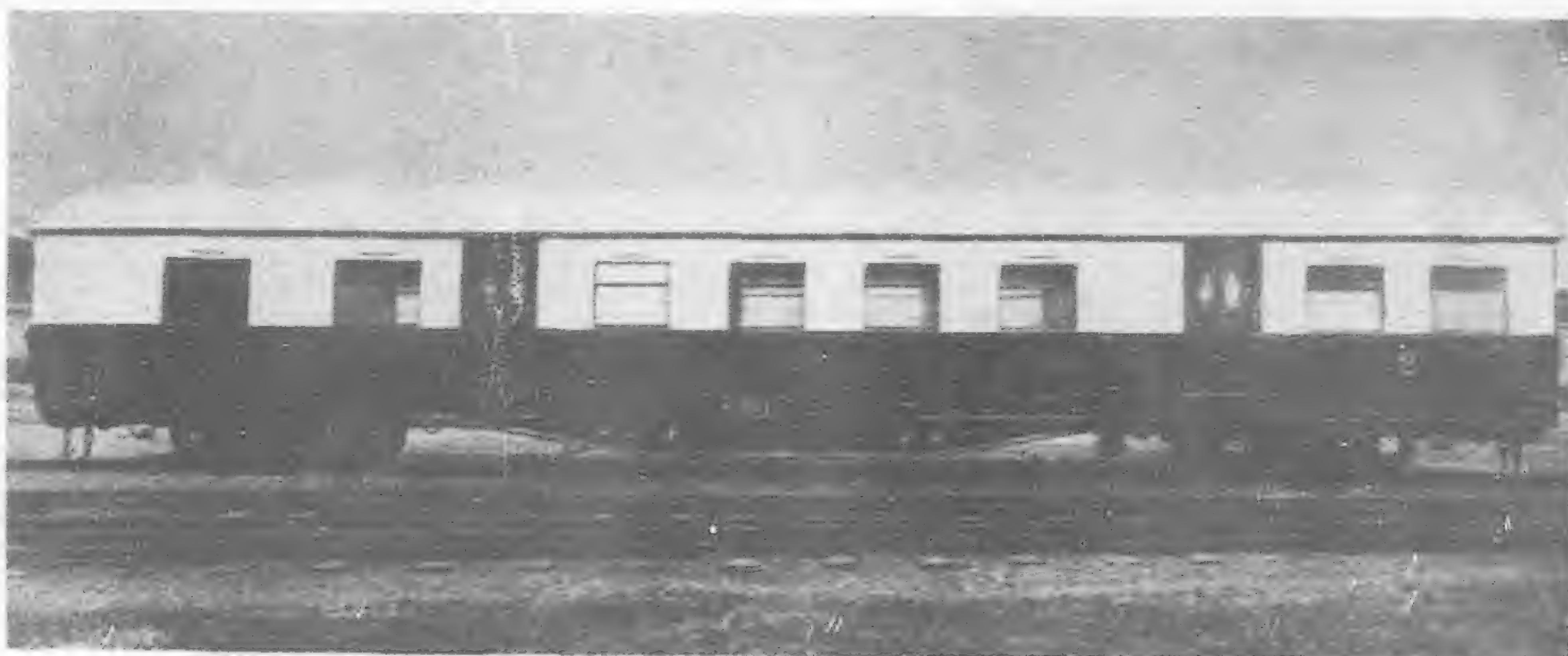
There were several special vehicles of the "mail" type. Three saloons were constructed. The original State Saloon, used by His Excellency the Governor and High Commissioner is now the property of the Perak Government. His Highness the Sultan of Johore owns a saloon of this type, and a third is used for general purposes; a fourth was added in 1922 being a first class coach converted for the purpose.

The institution of the through express to Penang and Singapore led to the introduction of the Restaurant Car, of which five were built in 1911 and 1912. They had small end kitchens and seated 20 passengers. Four others were built in 1915. These had center kitchens, which divided the coach into two dining compartments, accommodation for 24 chairs and 12 tables being provided.

In 1911, sleeping cars were introduced. The early cars, of which two still remain to deal with rush periods, had eight cabins containing two berths each. Each cabin had two windows, which while admitting more air, also admitted more noise. The berths were located longitudinally and were too narrow for comfort. The original vehicles had no fans, but these were subsequently fitted. The design of the vehicle included a "cross-over" corridor, which resulted in the creation of four triangular cabins. A small bathroom and lavatory accommodation was provided.

There were also two Postal sorting vans of the "mail" type, one being built to replace the van built by the Perak Government and referred to previously. The first was built in England in 1913 and was provided with a full bag catching and dropping equipment. Either this was a thoughtless imitation of British practice or else the designer had unusually optimistic ideas of the future of Malaya.

The additional width of the latest coaches increased the scope of the designer, and the "turn under" type has added to the comfort of the passenger to a considerable degree. Restaurant cars, of which four were built, showed no great advance other than in spaciousness, but in the sleeping coaches it was possible to introduce a transverse berth 2-ft. 8-in. wide. The "cross-over"



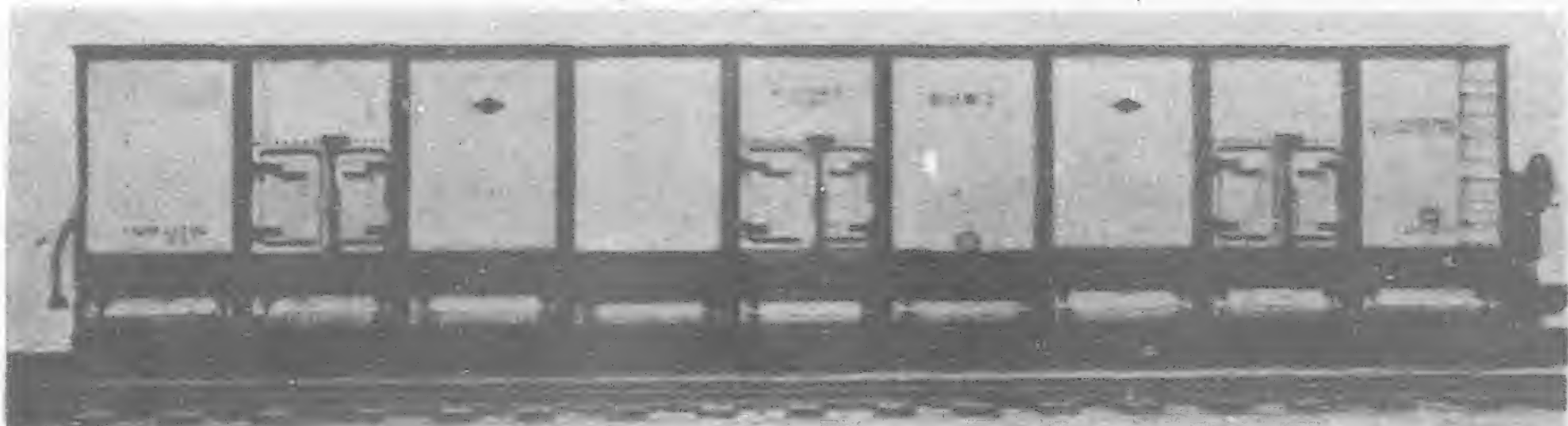
Exterior view of new bogie buffet car with observation end, left



4-wheeled covered goods wagon (loading capacity 12 tons)



Bogie motor-car truck



Bogie hopper wagon (loading capacity 40 tons)



Bogie well wagon (loading capacity 36 tons)

corridor was retained to preserve the balance of the vehicle, but all cabins, which were two-berthed, were of the same size. Fans, and adequate lighting and ventilation were provided, and bell communications improved.

The increasing use made of rail communication with Siam, and the approaching opening of the East Coast Line led, in 1927,

(Continued on page 423)

Siberia: Its Economic Development

By ANNA SEMEONOFF

SIBERIA, the name of which suggests cold and desolation, was formerly known as the land of prisons and convicts, who were deported there and left to their own devices to fight the hardships of nature. In a country of almost inexhaustible riches the people were deprived of the means of developing these natural resources. What had been done in the way of exploitation of these resources was quite negligible in comparison with the possibilities.

Siberia, especially Eastern Siberia, did not possess its own industry, and so had to be content with second-rate products sent from Central Russia and sold at very high prices. Local raw materials were bought at a low price and exported, and so the population did not benefit from the country's riches.

The area of Siberia is 12.5 million square miles, i.e. three times as big as the European part of the Union and one and half times as big as the whole of Europe. It has always been considered practically inaccessible on account of the frozen seas in the north and the forbidding mountains in the south with very sparsely populated regions in the districts between the two.

There were (and still are) regions where no man has yet set foot. Except for the towns on the Trans-Siberian railway, most of which were just large villages, the country consisted of unexplored "taiga." But now the "white spaces" on the map are being filled with numerous new names.

The north-east of Siberia is mountainous. The mountains are covered with taiga and farther north with tundra. This part has never been properly explored. Existing maps did not even correspond with the actual country. This was revealed by an expedition in 1926, since when the map of this huge country has been re-drawn. The Chersky Range, for example, is the name of a new range of mountains recently discovered.

The famous explorer Fridtjof Nansen fully realized the potentialities lying hidden in Siberia, and called it "the Country of the Future." The present economic development

of Siberia together with the development of rail and waterways and the discovery of the new North-western Passage is transforming Siberia from the Country of the Future to the Country of the Present.

Great changes have been brought about in Siberia during the last 10-15 years. Eastern Siberia is the least known; i.e. the part which lies east of the Yenesei. This includes the Krasnoyarsk District, East Siberian Region, Takut Autonomous Republic and Far Eastern Region. These districts and regions comprise in their turn various national districts and even autonomous republics, of which must specially be mentioned the Buryat-Mongolian Autonomous Republic and the Jewish Autonomous Province, Birobijan.

While the West of Siberia by its nature is more reminiscent of the European part of the Union, the Eastern part is really typical Siberia and its economic development is apt to follow its own peculiar lines, owing to the character of the country. Here is the

world's greatest center of water-power and largest stretch of virgin forest. Only a small proportion of the country has yet been investigated, but its natural resources are rapidly and thoroughly being explored. Every year the Academy of Sciences and its special department, the Council for the Study of Natural Resources, send expeditions all over the country, and it has a branch in the Far East. Every year new rich gold deposits are being discovered in Siberia. The Union, and mostly in Siberia, possesses the largest resources of the world both in auriferous sands and ores. Antimony, mercury, tin, vanadium, wolfram, molybdenum, sulphur, radium and other non-ferrous metals are also found.

As to iron, its resources in Siberia had always been neglected. Private enterprise of pre-revolution times was interested in the "cream" of the natural resources: gold, silver, mica, furs, etc., and the statement that "Siberia had no iron" was very common.

In Western Siberia, for instance, the metallurgical industry, developed on the basis of the coal-fields of Kuznetzk, had to use iron ore brought from the Urals, until new beds of iron ore were found near Minusinsk. In addition to the Iron Range near Nerchinsk, iron ore was discovered in 1931 on the tributaries of the Angara and on the Amur.

Eastern Siberia, as well as the Far East area, needs an industrial base. The exploitation of the natural resources requires extensive up-to-date machinery, and the movement of metallurgy to the East continues. Based on rich resources of coke-forming coal in the basin of Boorei (a tributary of the Amur) and on the vast Tungus coal-fields (north from the Angara), the construction of several metallurgical works is included in the Second Five Year Plan. The Tungus coal-field is forty times as big as the Donbas coal-field and it promises to be one of the richest in the world.

The old metal works in Petrovsk, east of Baikal, are being reconstructed. Mining-equipment works in Irkutsk (specially for the gold industry and locomotive repairing works in Ulan-Udeh, formerly Ver-

kneudinsk) are in operation. The gold output has already doubled that of Tzarist times, and with an increase in local machine building "the output of gold could be increased four times." These words of Stalin have become the latest slogan for Siberia.

The Far East never had metal of its own, but beds of iron ore have been recently discovered near Vladivostok and in Birobijan. Ship-building docks and railway and machine-building are being developed. The center of ship-building is the large new town of Komsomolsk with 40,000 inhabitants. The Baikal-Amur arterial rail-road is being laid across mountains and taiga. It will connect Lake Baikal with the lower Amur and will lead right to the Pacific Ocean—and there are other new towns, new factories and new roads. The country is rapidly becoming industrialized.

The method of Combines is widespread in the Soviet Union. Amalgamated production gives the highest productivity and the utilization of natural resources. Soviet industry is pervaded by



Khabarovsk: A main street

this idea of amalgamation. The Combines are based on many-sided utilization of raw materials and of the by-products. Free from competition between different industries, such combines are not confined to one particular region or republic. The Ural-Kuznetsk Combine for instance, which amalgamates not only ferrous metallurgy but also the non-ferrous chemical and other allied industries, is an inter-regional Combine for several regions, including the Kazak Autonomous Republic and the West Siberian Region.

Following the Ural-Kuznetsk Combine, the Angarostroi is being planned. The Angarostroi is the combination of Hydro-Electric power-stations on the Angara and its tributaries with various industries based on the Irkutsk (or Cheremhovo) and Tungus coal-fields. The economic development of the country moving in, so to speak, "meridional" direction is something quite new for Siberia. Hitherto the tendency has been to follow the line of the railway in the direction of least resistance. But the Yenesei and the Angara with their water-power offer vast possibilities for electrification of the country. This country is being called "A-E" country (from the initials of these great rivers). The prospects of industry based on cheap electric power are almost fantastic, and would require too much space to be discussed here. But the building of the Angarostroi brings up the question of workers to carry it through. The local population, in spite of very rapid progress both in number and in education, will not be able to cope with the demand. Thousands of qualified workers have to come to help in this huge work of construction.

The timber industry of Siberia is being rapidly mechanized. In Yakutia the forest had not been touched. Soviet ice-breakers have made the forests of Siberia known. The timber is floated on the Yenesei and is met by the ships of the Kara expedition.* The ships are accompanied by ice-breakers and aeroplanes, and thus the timber from Yakutia is available in Europe. The larch and cedar are especially valuable as they are used instead of metal for dams, and also as "shingles" (wood-tiles) for covering roofs. During the First Five Year Plan timber production increased by 110 per cent in Eastern Siberia. Centers for instruction in technical culture have been established in taiga regions. Huge wood-working enterprises started: a Timber Combine in Krasnoyarsk and the Igarka Combine with the largest saw-mills in Siberia. The other produce of the Combine are veneer, cellulose, paper and artificial silk.

Igarka is a new town on the Yenesei, about 100 miles beyond the Arctic Circle. It is five years old and has a population of 20,000. Apart from saw-mills it has Graphite Concentration Works. The town has a wireless station, electricity, a dairy farm, kitchen gardens, crèches, schools, newspapers, theaters and larch-paved streets. Igarka is also a new port for Eastern Siberia and is very important because it combines the advantages of a sea—and river-port. Other new seaports have been built, the New Port on the Ob and Tiksi on the Lena. The North-west Passage, permanently established in 1934 by the expedition led by Professor Schmidt, began its normal service in 1935. In order to supply ships with oil, newly discovered petroleum deposits in the extreme north of Siberia (near Katalanga Bay) are being bored. And a coal base is being formed on Dickson Island.

Agriculture in Siberia is collectivized on the same principle as in the European part of the Union. Whereas in the West agriculture often suffers from droughts, in the East and especially in the North it is the excessive humidity of the soil that has to be combated, and the draining of marshlands has been instituted in many regions of the Far North. This allows the nomadic population to settle down to agriculture. In Yakutia 55.7 per cent of

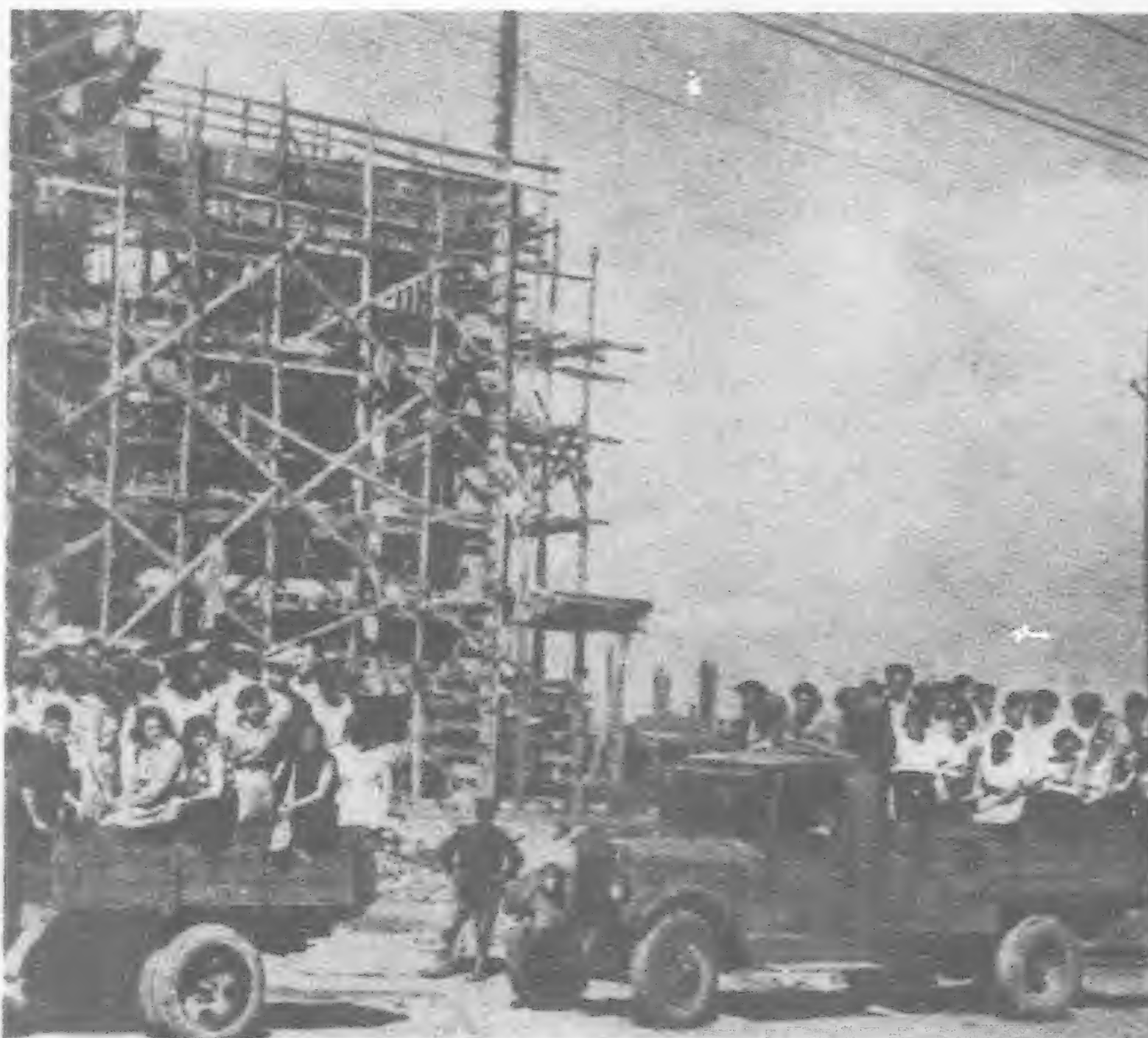
smallholdings have been collectivized and 44 per cent of the nomad population have formed collective reindeer farms—one of the greatest achievements is the sowing of wheat and growing of vegetables in the northern parts of the country. Cucumbers, cabbages and tomatoes grow beyond the Arctic Circle. In this way scurvy, the scourge of the north, has been practically overcome.

To give an idea of the development of the biggest autonomous Republic in Eastern Siberia, formerly called the Yakut district, I quote the speech of the President of this Republic delivered at the Session of the All-Russian Central Executive Committee on February 7.

"Yakutia in the past knew nothing but the hardships of a colonial outlying country, the people of which, except for 'toyons' and rich peasants, were hardly considered people at all. Including the latter, there was only two per cent of literacy in Yakutia. The people were on the verge of extinction, and some smaller nationalities which lived on its territory began to disappear altogether. The civil war dealt the economics of the country a severe blow, but did not prevent its restoration and development.

"During the First Five Year Plan and the two years of the Second 320 million roubles have been spent on the economic development of the country, whereas during the three centuries of Tzarist government not a copek was spent on the Yakut people."

Yakutia, once called "a prison without bars and locks," is now an Autonomous Republic. Emancipated people join in the life of the whole Union, enjoying the benefits of culture and economic development. On the river Aldan (a tributary of the Lena) a new town has sprung up, in which theater, radio, kino and the daily paper are to be found. In 1923 new gold mines were discovered on the river Aldan. The trust "Yakutzoloto" is one of the biggest industrial enterprises in the Union. Other resources include lead and oil, and on the river Yana many deposits of rare metals have been discovered. There are also brick-works, sawmills, tanneries. Altogether the production of local industry rose from 341,000 roubles in 1928 to 2.5 million in 1935, a production of industrial co-operation from 373,000 to ten million. The number of workers



Youthful builders of the new Siberian town of Komsomolsk

and office staff in Yakutia grew from 13,000 in 1932 to 43,000 in 1935. A great number of these workers are of Yakut and other local nationalities. Yakut women take an active part in the work of local Soviets, and many women are directors of Collective farms.

Yakutia suffers a great deal from the lack of means of transport. It has derived much benefit from the opening of the North-western passage, but the river transport is not adequate to the development of the industry, and there is an imperative need for a railway to shorten the distances between the Atlantic, the Arctic and the Pacific. The water-way system between the Siberian rivers and the Volga will unite all big rivers of the Union and will form a unified Volga-Siberian water-system. But meanwhile there is the Amur-Yakut motor road, by which 300 motor lorries transport the produce of the gold industry. The total transport reached 20,000 tons in 1935. Another Angara-Lena automobile road is being constructed. The air-route from Irkutsk to Yakutsk has been open for six years, but it is able to operate only during seven months, in summer with hydroplanes and in winter with skiplanes.

The population of Yakutsk, the capital, has grown from 10,000 to 30,000.

As regards education the Republic has 13 technicums with 1,500 students, and in 1934 a Pedagogical Institute was opened,

*In 1920 the Kara expedition was organized for the transport of grain from the mouth of the Ob to Archangel. Now with the opening of the North Western Passage it has become a regular timber-carrying service.



Showing types of the Nanai people who have come under the sway of Soviet progress in Siberia ; on the right a young Nanai girl

which prepares teachers of the native population. The administrative language in Yakutia is the Yakut language and the same of course is used in the schools.

All national districts, however small, have the chance to develop their national culture. Different languages, however, do not stand in the way of co-operation of numerous nationalities in working for their common cause of building up Siberia as the "Country of the Present." Its industries are being built on the basis of its own natural resources, and the first object is the satisfaction of the needs of its own people.

Statistics of the U.S.S.R. have now for some years included a new heading: "New Towns and Settlements." In 1927 in the Soviet Union were registered 83 new towns and workers' settlements. These figures have grown every year, and during the last three years 43 new towns have been built, among which are Magnitogorsk with 150,000 inhabitants, Stalinsk with quarter of a million, Karaganda with 116,000, Hibinogorsk, Stalinogorsk, Komsomolsk—all with populations of tens of thousands.

Such growth of towns is particularly notable in Siberia. In the Far East not only new towns but whole new districts have been constructed.

The Far Eastern Region is a long stretch of land on the shores of the Pacific Ocean, from the Bering Straits in the North to Vladivostok in the South. It includes the peninsula of Kamchatka and the northern half of Sakhalin.

Many people have a wrong idea of the Far East. It is either associated with an exotic picture of virgin forests harboring tigers and dangerous snakes, or it is pictured as a row of coastal military camps stretching for thousands of kilometers. Both ideas are wrong, and although in this territory of the Union vigilant military outposts of the Special Far-East Red Army are naturally concentrated, economic development in this huge district manifests itself in the same way as in other parts of the Union.

Eighty years ago the peoples of the Far East lived by hunting, fishing and, in a small degree, by cattle breeding. Outsiders from the west—Yakuts, Chinese and Russians—were not numerous. At the time of the October Revolution in a territory of two million sq. kms., including the well-populated southern part, the population had not reached one million. The colonization of the district had not been satisfactory. In spite of the introduction of agriculture and fairly good harvests, the Far East had to import grain and cattle from abroad. Industry was very little developed.

At present the population of the region has reached two millions, which, of course, is still a very insignificant figure for the area, but it is growing rapidly with the economic development of the region. After the October Revolution new people with their new outlook and attitude towards life and work came here through the as yet untouched taiga and, undaunted by obstacles or difficulties, discovered new places which had never been marked on the map.

In order to overcome the difficulties created by the vast expanse of Siberia, roads were first of all required. The new automobile road Komsomolsk—Khabarovsk—Vladivostok, was opened in

1935. This road of 800 kms., passing through the heart of the taiga, joins Khabarovsk, the principal town of the region, with about twenty small regions. The construction of this road was accomplished in 18 months. It cut through high mountains, and several wild mountain rivers were spanned by bridges, some of over 1,000 meters in length. Motor-lorries now take 30 hours to cover the distance from Khabarovsk to Vladivostok, and passenger cars 18 hours.

Khabarovsk has completely changed its appearance. Its population, 65,000 in 1929, has grown to 170,000. In 1935 about four million roubles were spent on town improvement. New schools and modern dwelling-houses have been built, among which is a seven-storied house of Soviets. The town possesses a large Stadium, a house of school-pioneers and a theater of the Far-Eastern Red Army. Three theaters are open during the winter season.

The population of the new town Komsomolsk, which was built by the Young Communists in 1932, has reached 80,000. The foundations of this town on the river Amur, 400 kms. from Khabarovsk, were laid by 2,000 Komsomoltsy. Every square meter of soil had to be cleared of trees and stumps, and bogs had to be drained before houses could be built. When the natives (Nanais) saw the new-comers landing, they moved away down the Amur, but the Young Communists gradually won their confidence. At present there are two big Nanai Collective Farms, and the local population takes an active part in building up their country on the new cultural principle. There is now a machine-building plant and other factories. Most of the settlers live in the city, where they are accommodated by the municipality with houses, pasture allotments, and stock, on a long-term payment basis. Food-stores, mechanized bakeries, fisheries and slaughterhouses provide food. The town has schools, two hospitals and 45 physicians. In 1935 1,000 children were born in this town, built by their parents from its very foundation.

Dozens of such towns are being built in the Far East. Some of them have not yet been marked on the map. The maps indeed cannot keep up with the building rate of the Union.

This building of new towns, and the new industries which spring up in order to satisfy new demands, seems to give mutual stimulus to rapid development. To give an idea of the construction not only of towns but of whole districts, I give extracts from articles by E. Bersin, the Director of Dal'stroy (*Izvestia*, Jan., 1936).

Dal'stroy is an organization for the purpose of investigating the most outlying taiga in the Far East, building roads there, developing gold-mining, and investigating other resources.

The district of Kolyma, in the North-eastern extremity of Siberia, is not yet quite defined on the map. The names of Verhne-Sredne- and Nizhne-Kolymsk were names of mere hamlets, to which political prisoners of the Tzarist regime were often sent for life. This district had no roads. Up to the second half of the nineteenth century there was only a bridle-path between Yakutsk and Sredne-Kolymsk, and it took two years to make this journey. No expeditions had penetrated the depths of this country. This territory

of 500,000 kms. is very little known even to the average Russian.

In February, 1932, the expedition of Dal'stroy arrived in the bay of Nogayevo (sea of Okhotsk), and had to work out a plan of attack on this wild unknown district. By the end of March four tractors with technical implements crossed the Yablonovy range—an unprecedented record of tractors crossing wild taiga.

But the investigation of the territory could not progress without roads, and the building of roads could not be done without supplies of material. So the work had to be carried out by a complex method.

The necessity for a center of operations brought up the question of building dwelling-places, for which a site three kilometers from Nogayevo Bay was chosen, and thus was laid the foundation of the town of *Magadan*.

By the autumn a caravan of 40 lorries was to be seen on the road to Elekchan, an ancient town which consisted of five or six huts. The difficulties of building this road surpassed all expectations, as not only bogs, quicksands and rocks, but also geological ice, the most difficult obstacle to surmount, has to be faced. But by using moss and other devices, all the obstacles were overcome.

Then the question of food supplies arose, as people could not be fed only on fish and fats, but needed fresh vegetables. The supply of the latter by import was insufficient, and in December, 1932, the pioneers of agriculture started their work. In the Spring of 1933 seventy glass frames were glittering in the sun, and six hectares were prepared for vegetables. The crops of potatoes, onions, turnips, cucumbers, and even tomatoes, were not inferior to those in the central parts of the Union.

The local population of Orochi, Yakuts and Kamchadals, who were rapidly dying out in this district, had to be attended to. The work started with the building of medical centers and schools, schools where children could live, as their parents were mostly in a nomadic state of life. The questions of agriculture and vegetable growing were not confined to the settlements of the new-comers. Both had to be promoted among the native population and thus help them to change to a settled mode of life.

Four years have passed since the first expedition landed in Nogayevo Bay. During this time the port of Nogayevo has been built. This is the best equipped port on the sea of Okhotsk; in it several ocean steamers can be harbored at once. The town of Magadan, starting from the tents of the expedition, has grown into a proper town, with canalization, electric light, hospitals, schools, a Park of Rest and Culture, stadium, clubs, cinema and radio. There are two newspapers in Magadan, one in Russian, the other in the Orochi language. It has motor-repairing works where every month 50 motor-lorries are repaired.

The road, started in 1932, now extends for 600 kms.; it crosses the river Kolyma and continues on its left bank. Along the road there are other settlements and towns, as, for instance, Atka, with a population of 3,000, which has grown on the site of Elekchan. Prospects for further development of this district are enormous: new daily discoveries prove that the resources are not yet half known. The 600 kms. of road now seem insufficient. New roads are to be built, and a hydro-electric power station on the Srednekan is to be started.

For all this Kolyma requires coal, and the steamer *Rabochyi* was able to supply the need by delivering coal from Archangel by the Great Northern Sea Passage.*

The town of Magadan, owing to its situation, too far from the mountainous region, can no longer be used as a center for administrative purposes, and a new town on the river Kolyma is being planned.

As to agriculture, in 1935 the sown area reached 530 hectares. There are 1,500 square meters of hot-houses and 4,000 glass frames. The local population has 44 hectares of sowing area; 73 per cent of the local population are members of collective farms; 40 per cent of the population can read and write. The pedagogical technicum in Magadan prepares teachers of the local population (62 at present), who teach in their native language, an alphabet for which has been created.

Having come to this new land, the people who have worked in the construction of the district usually stay there, as they become attached to the country they have built. One of the most important reasons for success, Bersin considers, is the vast scope for individual initiative.

Young engineers who come there straight from the University have the chance to develop into scientific specialists. Unqualified diggers have become mining-managers and supervisors of work.

Of other new towns in the Far East Birobijan must first be mentioned.

Birobijan is the Capital of Jewish Autonomous Province; its population has increased by 5,000 in one year. Four years ago it was a small railway halt with 200 inhabitants; now it is a town with a population of 13,000, and has electric light, theater, a technical high-school, hospitals and restaurants.

Kalakan on the river Vitim, the district center of the Vitim-Olekminsk National Region (the country of the Evenki), was founded in 1931. Though on the map the river Vitim does not seem to be very far from Kutsik, north of lake Baikal, it used to take from two weeks to several months to cover this distance. Now, by motor, it takes two days, and by air, 2½ hours. In 1928 a solitary hut stood on this spot; now Kalakan has a radio station, a hospital and a Culture-center. The Evenki are rapidly changing their old mode of life for a settled one.

Oha, on Sakhalin, has become a town of international importance since the new oil-industry was established six years ago. In its third year the production of oil was 134,000 tons, and it has increased threefold since. The town is six years old and has 24,000 inhabitants; it is of the usual modern type. A railway line, though a short one, has been built in the Soviet part of Sakhalin, the first on this island.

Until quite recently the European part of the Union was connected with the Pacific Ocean only by one railway line, but the second tracks of the Trans-Baikal and Ussuriisk railways have been laid. The great Baikal-Amur artery (1,800 kms.) was completed in two years and was put into operation last year. This has been one of the greatest accomplishments of the Second Five-year Plan.

The rôle of *aviation* in the Far-East is mainly mail and passenger service. Air routes connect the outlying districts with the center and with each other. There is a regular route, Minsk—Moscow—Vladivostok. The air route Khabarovsk—Anadyr has just been opened. This is the fourteenth air line in the Far East.

With its intensive building, the Far Eastern Region is permanently in want of building materials. The production of the timber industry has been doubled since 1931 but is still far below the possible exploitation of its resources. According to the Report of the Khabarovsk Planning Committee, there are 8,000 million cubic meters of growing timber, which gives 120 million cubic meters a year for use. There are 60 kinds of trees which can be used for building and wood-working industries. The production of cement has grown seven times since 1934, and that of brick and other materials three times.

The capital invested in economic and cultural construction of the Region has been increased four times since 1932. But for complete industrialization of this rich and most important region more capital is required.

*This permanently established service by transport steamers must be particularly noted as the first in the history of navigation. Owing to it, all supplies for Eastern Siberia have been greatly reduced in price, increased in tonnage and are able to arrive five times sooner.

Water Power for Manchoukuo

Manchoukuo's plan for making water power the principal source of electricity in the new State is nearing completion. Present coal power enterprises are considered inadequate to meet the rapidly increasing demand.

The new Government policy is understood to contemplate development of the projected electric enterprises under Government auspices, with finances provided through a national bond issue. A close co-ordination would be effected between water-utilization and river conservancy, but preference would be given the former.

Although the program is nationwide, the plan calls for immediate activity on the Sungari River to supply of the major cities along the river. Discouragement of the generation of electric power for private use also is planned, it is understood. Further, in view of the specific nature of the enterprises, it is felt that the Government should create a special fiscal year for them.

A New Trade Route

Long Dreamed-of "Northern Passage" Linking Europe and the Far East is Opened by the Russian Steamship *Stalingrad*

By L. MUCHANOFF in the *British Russian Gazette*

AMONG the ships from different parts of the world standing in the Surrey Commercial Dock has recently been seen an unusual visitor. There, whence from high stacks of white timber issued a smell of tar and distant Siberia, floated the steamship *Stalingrad*, on which Soviet sailors have completed a voyage from the East to the West unprecedented in the history of mercantile marine navigation.

The ship's log contains this entry:—

"The steamship *Stalingrad*, in the course of 43 sailing days and nights, crossed ten seas and two oceans, following the route Vladivostok—Petropavlovsk on Kamchatka—Providence Bay—Bering Strait—Cape Vankar—Kolima—Tixie Bay—Cape Chelyuskin—Dixon Island—Igarka—Yugorski Shar—Murmansk—Tromze—German Sea—London.

"During the period the vessel covered 11,000 sea miles, 2,000 of which were through the ice and fogs of the severe Arctic.

"At the northern ports, to supply the population of Siberia, Chukotsk Peninsula and Yakut region, the vessel delivered 2,500 tons of foodstuffs and other goods. In addition, the steamship *Stalingrad* delivered to the icebreakers *Yermak* and *Litke* in the Laptev Sea 1,500 tons of Sangarsk coal from its hold, which was taken aboard in the mouth of the Lena River.

"In the trans-polar port of Igarka, the vessel took on board 842 standards of high quality timber, which was delivered to England in perfect preservation" . . .

The vessel was brought to London from Vladivostok along the Northern Sea Route by the experienced polar commander, A. P. Melekhov and his daring, disciplined crew of 38.

For ages men have dreamed of a northern sea route to link up the trade centers of Western Europe with the remote countries of the East, but all the efforts of adventurous sailors and daring explorers were defeated by the impenetrable ice.

History records that "382 years ago, the first polar expedition left London. It was equipped by the Company of Merchant Adventurers for the opening up of countries, lands, states, islands, possessions hitherto not reached by sea."

Later on, this company, of which Sebastian Cabot was the governor, became known as the Muscovy Company of Merchant Adventurers.

The leadership of this expedition, consisting of three vessels—the *Bona Esperanza*, *Edward Bonaventure*, *Bona Confidentia*, of a displacement of 30 to 60 tons, which sailed for the East through the Arctic Ocean—was entrusted to Sir Hugo Willoughby and Richard Chancellor.

Not one of the ships of this expedition succeeded in breaking through the ice beyond Novaya Zemlya. The two vessels of Sir Hugo Willoughby on the return voyage were forced to winter at the shores of the Kolsk peninsula, where all the 62 members of the crew perished from cold and scurvy.

The third vessel, the *Edward Bonaventure*, commanded by Chancellor, was accidentally carried into the mouth of the north Dvina to the town of Archangel, from where he was invited to Moscow.

Ivan the Terrible was pleased to receive the visitors from overseas. After this reception, Chancellor succeeded in establishing mutual trade relations with Moscow which, at that time, was a country also little known.

Later attempts of the Dutch, English, Norwegians and others to sail along the coast of the Arctic Ocean, for which a prize of 25,000 gulden was offered, did not meet with success.

Three centuries passed. It was only in 1878-79 that the Swede, Eric Nordenskiöld, attempted on the steamship *Vega* to cross from the Barents Sea to the Pacific Ocean, spending one winter at Chukotsk Land.

In the papers he left behind him, Nordenskiöld expressed the view that for mercantile ships to sail in those regions was an unrealizable dream, a "Utopia."

In post-revolution years, when the Soviet Union had entered the stage of peaceful construction, special forces and means were set aside for a comprehensive study of the Arctic regions bordering on the continent over a large stretch.

For the business of studying the Arctic, just as in all economic matters, a special plan was drawn up and a special system provided for the conquest of its borderlands.

Beginning with 1923, the first polar stations and observatories sprung up on the islands of Novaya Zemlya, the archipelago of Franz Josef Land and the islands in the middle of the Kara Sea.

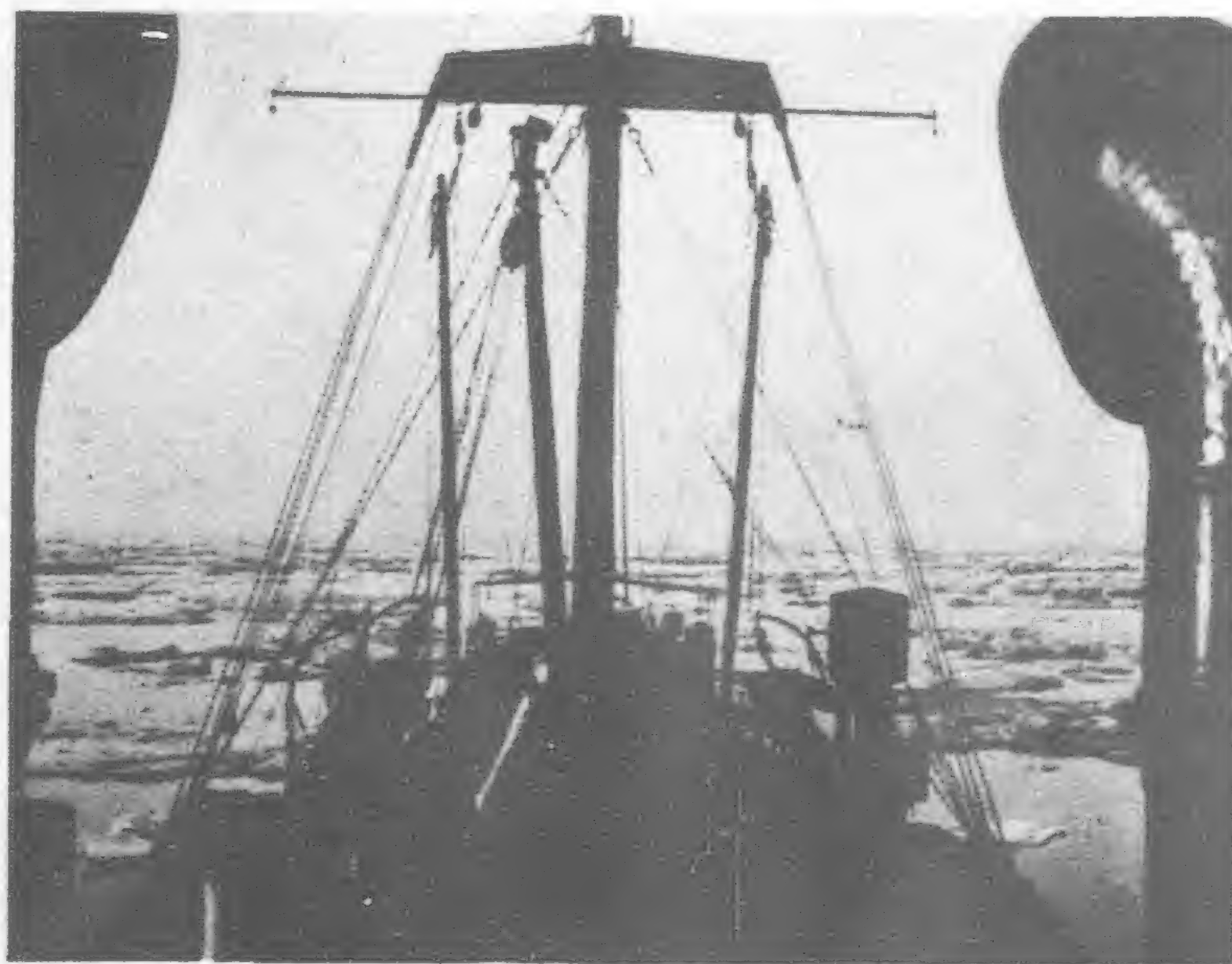
Having mastered in detail the first stage in the navigation of the Kara Sea, connected with the study of the hydro-meteorological and hydrographical data and all questions connected with the ice abounding in those

waters, the Soviet Union instituted safe regular trade voyages in the mouths of the full and extraordinarily rich rivers the Ob and Yenisei.

In the Kara sea voyages made in 1935, 36 foreign and Soviet steamships took part, exporting from Siberia to the markets of Western Europe more than 100,000 tons of different kinds of freight. For more than a decade English ships have taken a most active part in the Kara voyages.

The year 1932 has gone down in the history of the Soviet Arctic as a year opening up vast new perspectives in scientific research work in the extreme North. On October 1, 1932, the expedition of the icebreaker *Sibiriakov*, headed by Professor O. Y. Schmidt, crossed the whole route through the Arctic Ocean in one navigation.

When the *Sibiriakov* returned, practical conclusions were drawn from this expedition. On the personal initiative of Stalin there was formed in December, 1932, the Central Board of the Northern Sea Route, the duties of which were to organize regular sailings of merchant ships across the Arctic Ocean. Other functions of the Board were to institute coal bases on Arctic shores, to



The s.s. "Stalingrad" in the floating ice of the Laptev Sea

establish air ports for permanent supervision or inspection or surveying of the ice, to co-operate with ships in Arctic waters and to construct icebreakers of types most suitable for those regions.

During the course of three navigation seasons since its formation the Board has done a tremendous amount of work. From Archangel to Vladivostok, all along the coast of Siberia and Kamchatka, over a stretch of 7,000 sea miles, it has established a vast system of polar stations giving continuous radio-meteorological and hydrographical service. In 1928, the Arctic had only four polar stations; in 1932 the number had grown to 15, in 1934 to 43 and at the end of the navigation season of 1935 it had increased to 51, plus 76 northern radio-meteorological points.

In the planned conquests of Arctic wastes, the rôle of the polar stations, with the aeroplanes which some of them have, is enormous.

The functions of these stations and points include the equipment of ways through the Northern Sea Route, meteorological survey, weather forecast for aircraft and ships, a study of the territories adjoining the coasts of polar seas, the useful minerals on those territories, the life of their populations, etc.

Now that the polar navigation season of 1935 is over, a season in which actually the first attempt was made to exploit the Northern Sea Route for normal navigation, concrete figures will show on how wide a front the icy fastnesses of the North have been attacked.

Eighty Soviet ships have sailed in polar seas to the remotest islands in the high latitudes of the Arctic.

Fifteen cargo steamships, not including the icebreakers which serve navigation in those waters, almost at the same time rounded Cape Chelyuskin (the northernmost extremity of the Asiatic continent) a region which, prior to 1932, was considered impenetrable.

The year 1935 brought great animation to the entire coast and continent of the extreme North. A few figures will give a complete picture of the planned campaign on sea and land in the trans-polar circle. This year, the Russian Arctic Institute sent out 39 geological and hydrological expeditions in which 214 persons participated; 234 persons on five ships were engaged in the Kara, Chukotsk, Barents and East-Siberian Seas on special hydrological work; the Marine Department sent out seven expeditions with a total of 116 members to study the regime and movement of the ice in the polar basin; the Mining and Geological Department sent out ten geological expeditions to the Arctic, also personnel for three ice-survey stations, numbering altogether 524 persons, out of which 423 have remained to work under winter conditions.

Six different expeditions, consisting of 160 scientists of different specialities, also went out. Lastly, the number of persons wintering at the polar stations has increased from 400 last year to 551 this year.

The number of persons employed in the entire system of the Central Board of the Northern Sea Route is 30,000 but as this number is still inadequate for the huge territory to be covered, it is expected that the army of polar workers, headed by Professor O. Y. Schmidt, will continue to grow year by year.

Whereas three years ago there was not one polar station on the sectors Dixon—Cape Chelyuskin, and from Cape Chelyuskin to Cape Wellen, and the outlet in the Bering Strait, and the icebreaker *Sibiriakov* had to make its way in the dark not knowing what depths of ice lay ahead of her, now everything is remarkably changed. The Arctic has become unrecognizable.

The whole of the Great Northern Sea Route is equipped with a close network of polar stations, air and ice surveys, making it possible for commanders of vessels to choose the easiest way through the ice and icebergs. And, most important of all, in places difficult of passage, in the Vikitski Strait, dividing the Taimir Peninsula from North Land, and in the Chukotsk Sea, powerful icebreakers are stationed—the *Lenin*, the *Krassin*, the *Yermak*, the *Litke*—which are ready at any moment a commander calls to convoy ships through the difficult ice.

What would have been the thoughts and feelings of Norden-skiöld if he had chanced to appear in his little wooden vessel at the side of the powerful Soviet icebreakers sailing the Arctic? What would have been the emotions of De Long, Nansen, Amundsen, Sedov, Rusanov, *Sibiriakov* had they happened to be in the Arctic in 1935? The dauntless explorers would have seen an industrious army of Soviet polar workers peacefully conquering new lands, islands, straits and seas over the caprices of nature.

The scientific conquest of the Arctic, the technical equipment of ways across the Arctic Ocean, has made it possible in 1935 to

send transport steamers instead of exploration ships in the traces marked out by the *Sibiriakov*, *Chelyuskin* and *Litke*.

The merchant ships, *Iskra* and *Vanzetti*, have already crossed the Arctic Ocean from West to East, and the *Stalingrad* and *Anadyr* from East to West. All these ships were built in Soviet shipyards.

This crossing of the first caravan of merchant ships is of universal historic importance, for it lays the foundations for regular communications between West and East by the shortest route.

The dream of sailors of the 16th century and Sir Hugo Willoughby has been realized by Soviet sailors.

Merchant ships have crossed the Great Northern Sea Route.

The North is alive, flourishing, extending . . . A dream has become reality.

Shanghaiander in Japan

(Continued from page 388)

in foreign attire, and gather around the caller to learn his wants and gossip so long as he desires entertainment. There is no charge for their company beyond the moderate tariff of the menu card, whereas geisha cost handsomely by the hour—though a recent strike was designed to bring down the cost assessed by the geisha overlords and the percentage exacted by these worthies.

At the seashore, on the athletic field, one sees young feminine Japan in aspects of physical emancipation undreamed of little more than a decade ago. Japanese boys are going in for sports, especially baseball in a tremendous way, as indeed may be said of the youth of China, the Philippines and other Far East nations, but there is a special fascination in watching the emergence of the "mogo" or modern girl simply because she has such heavy restrictions to throw off. One thing remains definitely unchanged—the sweetness and charm of Japanese womanhood, visible in every class and occupation undimmed by any vicissitude of fortune.

The writer went through the Japanese earthquake of September 1, 1923, in Tokyo. It seems impossible ever to write of Japan revisited without dragging the fact in by the ears; for surely no one could see two great cities leveled into smoking ruins, and speedily rebuilt into metropolises more mighty than ever before without undergoing some corresponding inward transformation himself, sympathetically.

Tokyo in particular has become something without parallel in the world—a tremendous far-spreading new city as gaudy as a circus, with broad streets on which motor-cars flee at high speed with no respect for any rule save that of the traffic light, with massive foreign-style buildings and cafe fronts like locomotives, windmills, varied and often grotesque as California filling-stations with ball-jangling newsboys crying tiny extra-edition "gogai" about news which happened in Washington or London or Paris a matter of seconds ago, with baubels of every description still hawked on the colorful rebuilt Ginza which more than ever ranks as one of the really unique thoroughfares of the world. . . . and Yokohama too, rebuilt once more into a mighty port after greater prostration than that of Tokyo. . . . what can one say of such cities, of such a nation, of such a people?

The more one sees the less one says, if he has wits; for the impressions to be absorbed are endless. Of course there are the official views to be had, from the Foreign Office spokesman and other less regularly inspired sources (perhaps made pleasantly accessible in some informal Japanese-style meal in a cool room by the flowing Sumida river at Ryegakubashi), and there are the foreign sages of the Imperial Hotel to be consulted whether or no; but truest wisdom, perhaps, springs from the ancient unchanging moat about the Imperial Castle, the true heart of Tokyo. There one gazes across water to a sheer rise of curved carefully-fitted stone to overhanging pines drooping down from the palace grounds above, and one strolls to the twin bridges, the Nijubashi giving entrance to the palace, and watches Japanese rural visitors pausing to bend low in a silent tribute to the godlike head of all that means anything to them as individual, family, nation. One gets little for the head but much from the heart from this.

And perhaps after all in spite of its dazzling veneer of modernity and its bristling drive of imperialistic expansion, Japan is still to be read best by the heart not by the head. It is the fact that Japan's heart remains warm beating, united which makes Japan what it is, and perhaps that heart will somehow guide the nation through the mazes created by ambitions, divergent councils, and endless strivings to pull the strings which wield the power.

Manufacture of Chemicals in China

AN interesting article in *Eastern Engineering and Commerce* by Dr. Zai-Ziang, formerly Technical Director of the Nanking Ministry of Industry, deals with the development of the chemicals industry in China.

Dr. Zai-Ziang says:—

China, for many centuries, has depended on agriculture as the main occupation of her populace. Even to-day the Chinese farmers are still the mainstay of the nation. China's exports consist principally of raw materials in form of minerals and agricultural products, such as seeds, beans, etc. These raw materials are exported to foreign countries, fabricated into commercial commodities, and reimported into China in the form of finished products, sold at a much higher price. China wood oil, for example, is transformed in Europe and America into varnishes and floor-spars, which are then sold in the Chinese market at a profit. This, as I see it, is one of the main causes for China's continual unfavorable balance of trade for the last few decades. Moreover, to depend on raw materials alone for our export trade is unstable as well as unsound. Wood oil, as mentioned above, is now being cultivated in many parts of the world. The soya bean, which was exclusively grown in China in former years, becomes now an important product in the State of Illinois in the United States. Whenever such plantations are found impracticable, chemists get busy to discover substitutes. Therefore, unless ways and means are devised to utilize our own raw materials and agricultural products to the fullest extent, we have no hopes for salvation. In other words, China must become an industrial nation in order to maintain her economic balance.

Example of Japan

Fifty years ago Japan was much in a same position as China, perhaps even worse, for Japan lacks many raw materials. By leaps and bounds, she transfers herself from an agricultural economy to an industrial economy, and has accomplished in a few decades what took England over one century to achieve. For example, the first commercial production of rayon took place in Japan in 1918, with a humble beginning of 100,000 lb. a year. To-day, her rayon industry ranks second in the world, with a total production capacity of 200-250 million pounds a year. Russia was also an agricultural country. There was no chemical industry to speak of. Of the 55 small chemical works established in the time of Tsarist Russia, only 38 survived after the imperial war. However, in 1932, the production of sulphuric acid was 4.5 times that of 1913, and that of superphosphate was about ten times. Synthetic rubber was likewise very active. It was declared by Stalin in 1933: "In our country we have everything except perhaps rubber. Within a year or two we shall have our own rubber as well."

Chemical industry is generally divided into heavy chemicals and light chemicals. Prior to 1917, chemical manufacture in China was only confined to the latter division, and, even then, to a very limited extent, such as soap, tooth powder, flavoring powders, etc. While light chemicals do contribute a considerable part towards national industrialization through their wide distribution and accumulative capital, time and space do not permit us to go into great details of this topic. We shall content ourselves with a general discussion of the more important phase, namely the basic heavy chemical industry. This, again, may be sub-divided as follows:—

- (1) Acids and alkalis
- (2) Nitrogen industry.
- (3) Chlorine industry.
- (4) Others (coal-tar dyes, cellulose industry, etc.).

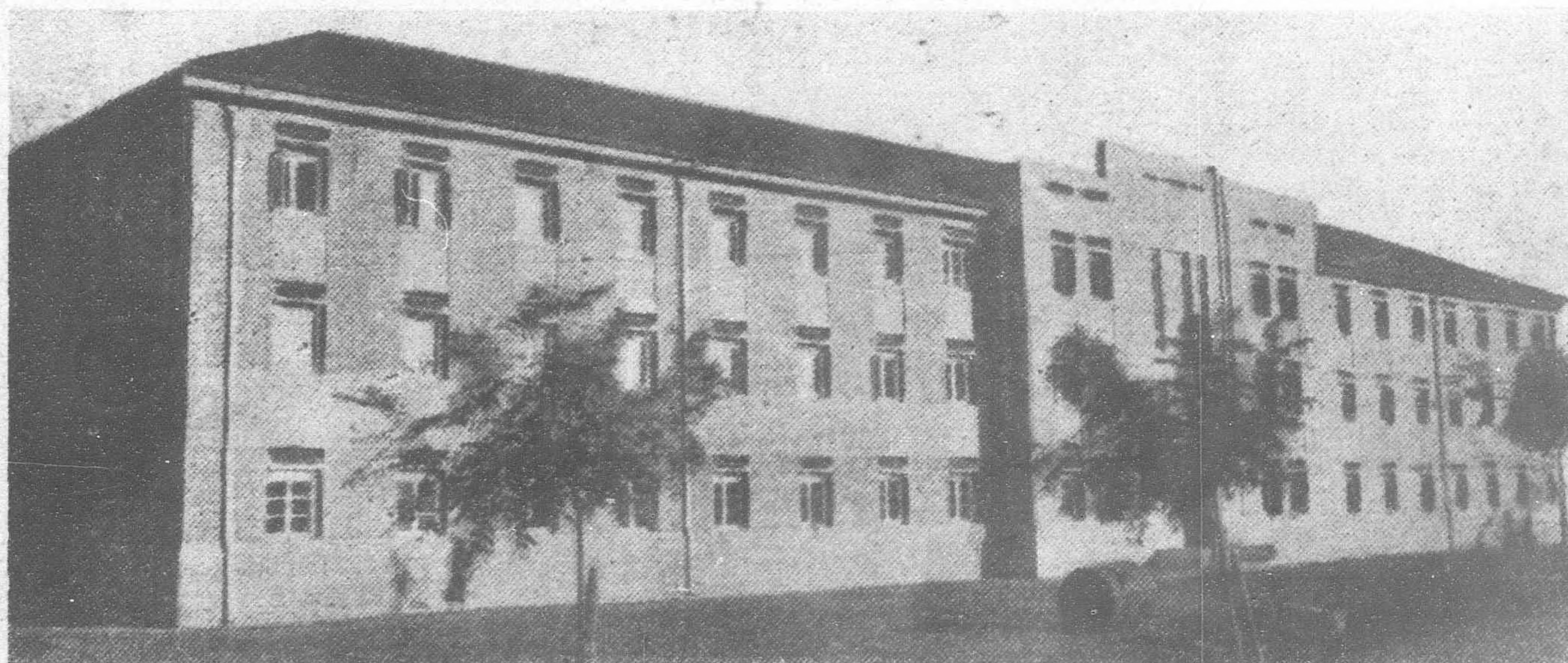
Wherever an overlapping occurs, the chemical is grouped according to its principal function, e.g., HCl may be grouped either under (1) or under (3), but because its principal industrial application lies in its acid property it is included in the first group.

Acids and Alkalis

These chemicals form the backbone of industries known as the process industries. Whether a nation is progressive or backward in industrial development many generally be measured by the productive capacity and annual consumption of acids and alkalis within her domain. China produces some natural soda in Mongolia and a few other places. Mineral acids were almost exclusively manufactured in Government arsenals for their own use. Aside from that, acids and alkalis for industrial use depended on imported goods as the main source of supply. This is even true of to-day.

Thanks to the hard effort and untiring spirit of the promoters of Pacific Alkali Company (now known as the Yungli Chemical Industries, Ltd.), the first modern Solvay plant for making soda ash came into existence in Tangku, and the first batch of Chinese soda appeared on March 12, 1922. With a humble start of less than 50 tons a day, through hard struggle against foreign competition and other adverse conditions, the plant has now a daily capacity of over 110 tons of soda ash and over six tons of caustic soda. The Tien Yuan Electro-Chemical Works in Shanghai, the two Le Blanc Soda Works in Szechuen and the caustic plants in Honan and Kwangtung are the others manufacturing alkalis in China. It is gratifying to note that the importation of foreign soda ash in 1933 was reduced to one-half as compared with 1924.

Considering that Japan is making about 1,200,000 tons a year (or 4,000 tons a day) of sulphuric acid (50 deg. B) alone, China's present supply is certainly far short of the mark. It is therefore



Modern factory of the Yung Li Chemical Industries Co., Ltd., near Pukow

necessary to open new fields for these basic chemicals by reducing their cost of production and encouraging their use in all lines of manufacture.

The Nitrogen Industry

Outstanding among chemicals of this group is ammonium sulphate, a nitrogen fertilizer extensively used in China. Up to the present time, this product has been entirely imported from England and Germany. During the most prosperous year of 1930, the total import amounted to 3,133,427 piculs (over 200,000 metric tons), valued at Hk. Tls. 18,052,164 (over \$27,000,000). As all the three raw materials—air, coal and sulphur—are obtainable in China, it seems ridiculous that we should pay millions of dollars for buying this fertilizer so increasingly in demand. The Yungli Chemical Industries, Ltd., is now putting up a plant in Pukow. When completed, it will be able to supply at least one quarter of China's consumption. Besides, the Tien Lee Works has installed an eight ton ammonia plant bought from Du Pont, and another plant producing about ten tons of anhydrous ammonia will soon be erected in Canton. With this as a starting point, it is hoped that other nitrogen fertilizers such as a calcium cyanamide and ammonium phosphate, will soon follow. By the new ammonia-oxidation process, nitric acid may be made directly and cheaply, thus making it possible to develop such allied industries as nitro-cellulose, nitro-glycerine, etc. As long as we can draw an inexhaustible supply of nitrogen from the air, there is no necessity of buying foreign atmosphere.

Chlorine Industry

Formerly this was included in the alkali industry, but, because of the importance of industrial chlorine and its products, it is now listed separately. The principal source of raw material is common salt, found in great abundance in all parts of the world. In China, common salt is considered a Government monopoly. Many restrictions are imposed upon the use of industrial salt. Because of this, and because of manufacturing difficulties, salt in China commands a much higher price than in England or America. For these reasons, the chlorine industry has not been developed to any great extent at present, we have only one factory—the Tien Yuan Electro-Chemical.

Rolling Stock of the Malayan Railways

(Continued from page 415)

to the introduction of a new type of first class carriage for day and night use. Six cabins are provided, two pairs of which have inter-communicating doors for family parties. Each cabin has two roomy seats which pull out to provide a lower berth, while an upper berth is provided above, folding upwards against the ceiling during the day. Toilet facilities are provided in each cabin, and two large bathrooms are fitted at the ends of the carriage.

There are four modern saloons. One is a State saloon, which is a fine example of the coach builder's art. The accommodation consists of a roomy saloon with observation end, containing two couches which can be converted into beds, a private cabin and bathroom and a kitchen. This vehicle was built by the Birmingham Carriage and Wagon Works. Three other saloons are designed on somewhat similar lines, but are less elaborately finished. They were built at the Railway Workshops.

A buffet car was introduced in 1922 when three vehicles were built for service on long-distance stopping trains. These provide first class seating accommodation as well as a small dining room and kitchen, where cold meals and refreshments are served. In 1929 the idea was elaborated and two vehicles were built for the East Coast Line, consisting of first and second class accommodation and a kitchen. The first class compartment has an observation end, affording the passenger a wide view of the fine country traversed by this line.

In 1932, the Singapore night mail was accelerated and left the starting point at 10.0 p.m. instead of 8.30 p.m. A dining car was no longer necessary, but seating accommodation was required for first class passengers for occupation before turning in and for early morning tea. This led to the conversion into buffet cars of two "mail" type coaches and later of a "turn under" type of coach. A small servery and bar (with brass rail) is provided, capable of providing tea, coffee or cold drinks. The saloon is fitted with comfortable lounge chairs and a card table. The windows are enclosed by permanent gauze screens which exclude dirt and to some extent noise. The air is circulated by fans, while two

induction fans are also fitted to blow in fresh air from outside. The last of these three vehicles is finished in unscratchable rexine which gives a most pleasing finish to the interior.

Second class accommodation has not been neglected, and second class sleeping cars are included on all night trains. They have been converted from second class coaches of the "mail" and "turn under" type. Upper and lower berths are provided and placed longitudinally on either side of a central gangway. Toilet facilities are also available.

Before bringing this article to a conclusion, mention must be made of the coach work of the Rail motor train sets. These sets have been constructed on the articulated principle, being carried on three bogies. All-steel construction has been employed and its suitability for use in this climate is being closely watched. Accommodation for 16 second class and 92 third class passengers is found, together with a lavatory for each class.

Comfort is one of the means of combating road competition, and perusal of this article will convince the reader that much has been done in this direction. This, perhaps, is not the place to write of the future, but "air-conditioned" coaches are now on order and it is hoped will go far to place the F.M.S.R. in the forefront of comfortable travel.

A Metrovick Turbine Installation in China

(Continued from page 411)

the feed water to a temperature of 200° F. at the economical load of 2,400 kw. The steam supply to No. 2 heater also supplies an evaporator used for distilling the necessary make-up boiler feed supply, a desuperheater being interposed in the latter connection.

To complete the closed circuit feed system, surge and reserve tanks are provided to cater for irregularities in the boiler feed pump demand relative to the output of the main condensate extraction pump. The latter pump is mechanically driven from the turbine unit and discharges first through the coolers of a two stage air ejector, thence to No. 1 feed heater, the gland heater, and finally through No. 2 heater to the boiler feed pump suction.

From this brief description, it will be seen that the system is unusually comprehensive for a unit of this capacity, and results in a correspondingly high overall thermal efficiency.

Since the introduction of the self-contained design by the Company in 1928, close on 200 units have been built at the Trafford Park Works for installation in various parts of the world, including some twenty-six for South Africa, and twenty for India.

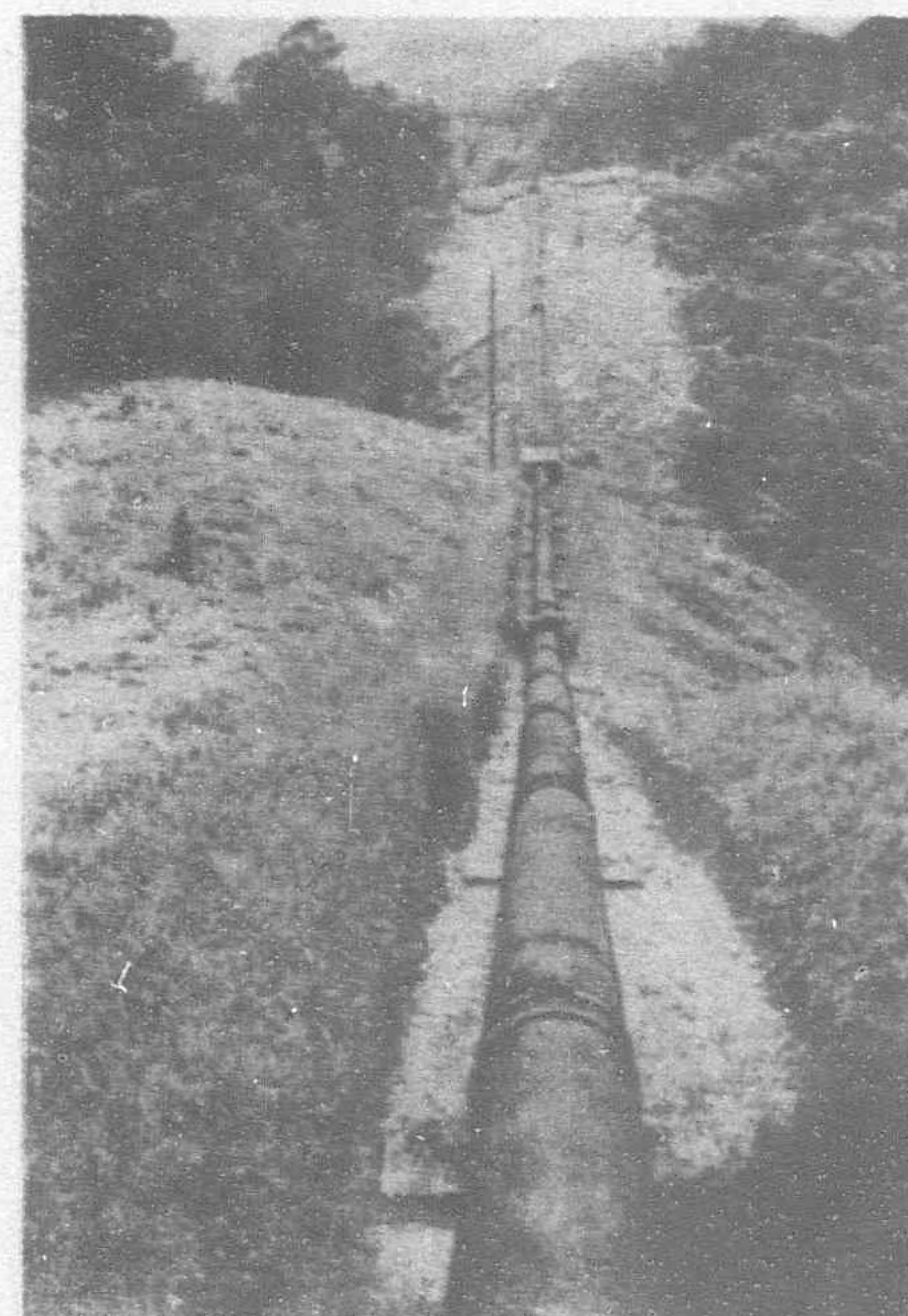
The Electricity Supply of the Federated Malay States

(Continued from page 410)

After paying the interest on the Sterling and Local loans, there is a net balance of \$424,225, which gives Government a return of 5.45 per cent on the money invested in the undertakings from general revenue.

The revenue of the department increased in 1934 by 21.9 per cent over the 1933 figure, and the 1935 revenue exceeded the 1934 figure by 20 per cent but owing to the fact that the plant in Selangor had reached its full capacity the development during the year under review was limited.

The thanks of the Government are due to every member of the staff of the department for their loyal co-operation in bringing about these very satisfactory results.



Main pipe line between the Ulu Langat Upper and Lower Stations. The one is approximately 600 feet above the other

Engineering Notes

MINING

COAL LIQUEFACTION PLANT.—An order for Y.3,000,000 worth of equipment for its coal liquefaction plant in Fushun will soon be placed by the South Manchuria Railway with the Kure Naval Arsenal and the Muroran Iron Foundry in Japan. The plant will cost Y.4,000,000.

MANCHOUKUO'S MINERALS.—A thorough-going survey of Manchoukuo's mineral resources will be undertaken soon by the South Manchuria Railway Company.

The first districts to be explored will be the areas between Chiatou and Kungchangling, on the Antung-Mukden railway line, and east of Haicheng, known to have rich deposits of iron ore. Later, inspection parties will be sent to the Tungpientao district, near the Korean border.

COAL IN SZECHUEN.—Rich deposits of coal have been discovered in southern Szechuen.

According to a report from Mr. Li Hsien-cheng, geologist of the Western Science Institute (Ssi-Pu Ko-Hsueh Yuan), one of the richest coal fields ever discovered in Szechuen has been found in Yungchuan. The mine area covers more than 6,000 square li (over 667 sq. miles).

Coal deposits have also been found by Mr. Shang Huang-chiao, Director of the Geological Section of the Science Institute, in Yunyuan and Huili.

INDUSTRIAL

NEW CENTRAL BANK BUILDING.—With the approval of Dr. H. H. Kung, Minister of Finance and concurrently Governor of the Bank, the Central Bank of China has decided to erect a new building for its Nanchang branch at a cost of \$200,000.

NEW BREWERY.—The Asia Beer Company, capitalized at Y.1,000,000, and scheduled to produce 120,000 cases of beer annually, will be established in Hsinking in the near future. The capital will be raised to Y.2,000,000 in October. The new firm will have its head office and factory in Mukden.—*Domei.*

JAPANESE PAPER INDUSTRY.—Noteworthy developments in Japan's paper industry during the end of last year were the installation by several companies of additional equipment for producing new types of paper and board, according to recent information from Mr. Carl H. Boehringer, assistant United States Trade Commissioner at Tokyo.

JAPAN'S COTTON TRADE.—Japan has gained control of the cotton goods market in British Mandated Tanganyika territory, East Africa, the latest trade figures show.

Imports from Britain were 29 per cent of the total and from Japan 22 per cent (says the *British United Press*), but the British imports were mainly mining machinery, which will be non-recurrent.

NEW HYDROGENATION PLANT.—Bringing the total number of coal hydrogenation plants, projected by Japanese firms to three, the Chosen Nitrogen Co., has filed an order with the Kobe Iron Works for processing machinery capable of extracting 50,000 tons of gasoline from coal each year, it was revealed to-day.

Scheduled to begin operations at Kohan, Korea, in April next year, the plant, together with those planned by the South Manchuria Railway Co., and the Mitsui interests, will assure Japan a supply of 100,000 tons of gasoline each year.

The so-called Navy process of low-temperature liquefaction will be used by the Chosen organization, which will cost Y.15,000,000 to build.

This system utilizes about four tons of coal to obtain one of gasoline.

SOYA BEANS.—The trade agreement between Germany and Manchoukuo is intended to encourage the purchase by Manchoukuo of German goods and by Germany of Manchoukuan soya beans.

Germany will permit the importation of Manchoukuan products to the amount of Y.100,000,000 (£6,000,000) during the twelve months beginning June 1. Germany will pay for these products as to three-quarters in foreign exchange and as to one quarter in Reichsmarks. Manchoukuo agrees to use the Reichsmarks to pay for German goods.

IRON WORKS.—H. A. Brassert & Co., the engineering concern, of Walbrook, E.C., has secured a contract, which may ultimately be worth £2,000,000, in connection with the proposed erection of a large Government iron and steel works in the province of Kwangtung (South China).

The contract, which is for surveying the technical and economic possibilities of the project, has been secured despite strong American and Continental competition. The approval of the Nanking Government has been obtained.

It will be remembered that H. A. Brassert & Co. built the new steel works for Stewarts and Lloyds at Corby.

RAILWAYS

RAILWAY LOAN.—A \$3,000,000 loan to finance the construction of the Szechuen-Hunan and Szechuen-Kweichow railways has been obtained by the Ministry of Railways from the Farmers' Bank of China on the security of Railway Reconstruction Bonds with a face value of \$4,000,000, it was revealed to-day. The loan is for a period of one year, bearing interest of eight per cent per annum.

The survey of the two lines, which when completed would substantially improve the communication facilities in western China, has been completed. Work on the construction of the lines will be started shortly, barring unforeseen political developments.

NEW RAILWAYS.—Three new railways were added recently to the vast web of railways covering the new Empire.

The lines are: the Mutankiang-Linkow Railway, 110 kilometers; the Linkow-Mishan Railway, and the Solun-South Hsingan Railway, 130.8 kilometers.

While the first of these two lines nearly parallel "Manchoukuo's" eastern border with Soviet Russia, the third forms a spear-head pointing at the border with Outer Mongolia.

The lines were completed six months ago, and have since been tested by the South Manchuria Railway Company, which will now operate them for the "Manchoukuo" Ministry of Communications.

CHENG TU-CHUNG KING RAILWAY.—Forming part of the reconstruction program of Szechuen, the construction of the Chengtu-Chungking Railway will be started as soon as the surveying work, now being feverishly pushed, is completed.

Negotiations have been concluded between the Szechuen Provincial Government and the China Development Finance Corporation for \$4,800,000 construction loan to be secured on the Szechuen reconstruction bonds for 1936, part of the Railway Reconstruction Loan, and the revenue of the railway itself after completion. Construction work will be undertaken by the Szechuen-Kweichow Railway Company.

With a total length of 523 kilometers, the projected line will link up Chengtu with Chungking, passing through Chienyang, Tzuyang, Tzu-chung, Neikiang and Yungchuan, in the central and richest section of Szechuen. The hardest part of the engineering work will be at the mountainous Yungchuen-Chungking section, where a 800 meter tunnel will have to be built.

NANKING-CHUCHOW RAILWAY.—Construction work on the Nanking-Chuchow (Chekiang) Railway, which forms part of the Kiangnan Railway project, is making good progress in accordance with the plans of the Ministry of Railways.

Train service is already in operation on the Nanking-Wuhu section. Laying of rails has gone as far as Hsuan-cheng, in eastern Anhwei, while construction work is proceeding satisfactorily on the Hsuan-cheng-Tunki section, in south-eastern Anhwei.

In order to utilize native material, an agreement for the purchase of 50,000 pieces of wooden sleepers was signed recently by the Anhwei Provincial Department of Reconstruction with lumber merchants of Hweining. The sleepers will be used for the Hsuan-cheng-Tunki section.

GERMAN RAILS FOR CHINA.—The Cologne steel magnate, Herr Otto Wolff, has secured an order for the equipment of the 186 miles railway line from Nanchang to Pinghsiang, with rails, eight locomotives, and 100 trucks, the aggregate value of which is about Rm.4,250,000.

This order is placed under the contracts concluded in August, 1934, between the Chinese Government and a German-Chinese syndicate, comprising the Otto Wolff firm and Chinese banks. These contracts provided at first for the building of the 186 miles of railway line from Yushan to Nanchang, and an option for the building of the second part of the line from Nanchang to Pinghsiang.

The first line is already in operation, and the option for the second part has been executed. Negotiations are in progress for further deliveries of railway material and rolling stock with Messrs. Otto Wolff.

COMMUNICATIONS

STEEL BRIDGE.—The completion of the steel bridge in Ningpo was celebrated in a ceremony held recently.

The bridge, which represents one of the most gigantic engineering structures ever built in Ningpo, costs \$700,000. Construction work on the bridge started in May, 1934.

JAPAN-SOVIET WIRELESS.—Direct radio telegraph service linked Japan with the Soviet Union on or about July 10, officials of the Ministry of Communications have revealed. The service, they add, would permit cheaper and quicker communication than the present cable service between Nagasaki and Vladivostok.

BRIDGES IN KIANGSI.—A ten million dollar project for the rebuilding of the bridges along the highways in Kiangsi province is being formulated by the Provincial Highway Bureau. Besides appropriations from the Provincial Government, the Central Authorities will be approached for a sum of \$2,000,000, and the National Economic Council for an adequate grant.

OMNIBUS SERVICE.—Omnibus service on the Kiangsu section (Hsuehchow-Sutsien-Haichow) of the Kiangsu-Honan Inter-Provincial Highway will be put into operation in the near future. This Highway will link Haichow, important port on the north-eastern coast of Kiangsu, and Chengchow, communications center in Northern Honan. A large consignment of omnibuses has been delivered at Hsuehchow. The Kiangsu Provincial Highway Bureau has also dispatched Mr. Hsien Chun-lei, technical expert, to complete the arrangements. Construction work on the Honan section is also nearing completion; traffic on the entire route will be inaugurated in the autumn.